

CODE ANALYSIS

| APPLICABLE CODES              |      |                          |      |
|-------------------------------|------|--------------------------|------|
|                               | Year |                          | Year |
| International Building Code   | 2006 | National Electrical Code | 2005 |
| International Mechanical Code | 2006 | Uniform Code for         |      |
| International Plumbing Code   | 2006 | Building Conservation    |      |
| International Fire Code       | 2006 | ADA Accessibility        |      |
| International Energy          |      | Guidelines               |      |
| Conservation Code             | 2006 |                          |      |

A.   Occupancy and Group:   EXISTING MECHANICAL PENTHOUSE   

Change in Use: Yes   No   X   Mixed Occupancy: Yes   No   X

Special Use and Occupancy (e.g. High Rise, Covered Mall):   MECH. PENTHOUSE

B.   Seismic Design Category:   N/A   Design Wind Speed:   N/A   mph

C.   Type of Construction (circle one): EXISTING METAL PENTHOUSE

          I    I    II    II    III    III    IV    V    V

          A    B    A    B    A    B    HT    A    B

D.   Fire Resistance Rating   Requirements for the Exterior Walls based on the fire separation distance (in hours): N/A EXISTING

North:   South:   East:   West:   

E.   Mixed Occupancies:   N/A   Nonseparated Uses:   N/A

F:   Sprinklers:

Required:   X   Provided:   X   Type of Sprinkler System: WET PIPE

G:   Number of Stories:   ONE   Building Height: 10' - PENTHOUSE

H:   Actual Area   per Floor (square feet):   260 SQ.FT.

I:   Tabular Area:   N/A

J:   Area Modifications: N/A

a)  $A_a = A_t + \left[ \frac{A_t I_t}{100} \right] + \left[ \frac{A_t I_s}{100} \right]$        $I_t = 100 \left[ \frac{F}{P} - 0.25 \right] \frac{W}{30}$

b)   Sum of the Ratio Calculations for Mixed Occupancies:

$\frac{\text{Actual Area}}{\text{Allowable Area}} \leq 1$

c)   Total Allowable Area for:

1)   One Story:   

2)   Two Story:   A<sub>a</sub> (2)

3)   Three Story:   A<sub>a</sub> (3)

d)   Unlimited Area Building:   Yes   No   Code Section:   

K.   Fire Resistance Rating Requirements for Building Elements (hours). N/A EXISTING

| Element                    | Hours | Assembly Listing | Element                    | Hours | Assembly Listing |
|----------------------------|-------|------------------|----------------------------|-------|------------------|
| Exterior Bearing Walls     |       |                  | Floors - Ceiling Floors    |       |                  |
| Interior Bearing Walls     |       |                  | Roofs - Ceiling Roofs      |       |                  |
| Exterior Non-Bearing Walls |       |                  | Exterior Doors and Windows |       |                  |
| Structural Frame           |       |                  | Shaft Enclosures           |       |                  |
| Partitions - Permanent     |       |                  | Fire Walls                 |       |                  |
| Fire Barriers              |       |                  | Fire Partitions            |       |                  |
|                            |       |                  | Smoke Partitions           |       |                  |

L.   Design Occupant Load: N/A EXISTING

Exit Width Required:   N/A EXISTING   Exit Width Provided:   6'x8'

M.   Minimum Number of Required Plumbing Facilities: N/A - 500 FT. FROM TOILET FACILITIES

a)   Water Closets - Required (m)   (f)   Provided (m)   (f)   

b)   Lavatories   - Required (m)   (f)   Provided (m)   (f)   

c)   Bath Tubs or Showers:   

d)   Drinking Fountains:   Service Sinks:   

FOOTNOTES:

1) In case of conflict with the U.S. Department of Justice Federal Registers Parts I through V - ADA Guidelines and specific reference to the International Building Code Accessibility Chapters, the more restrictive requirement shall govern.

2) Additional Code Information shall be provided at the discretion of the Building Official for Complex Buildings. Including, but not limited to:

a) High Rise Requirements.

b) Atriums.

c) Performance Based Criteria.

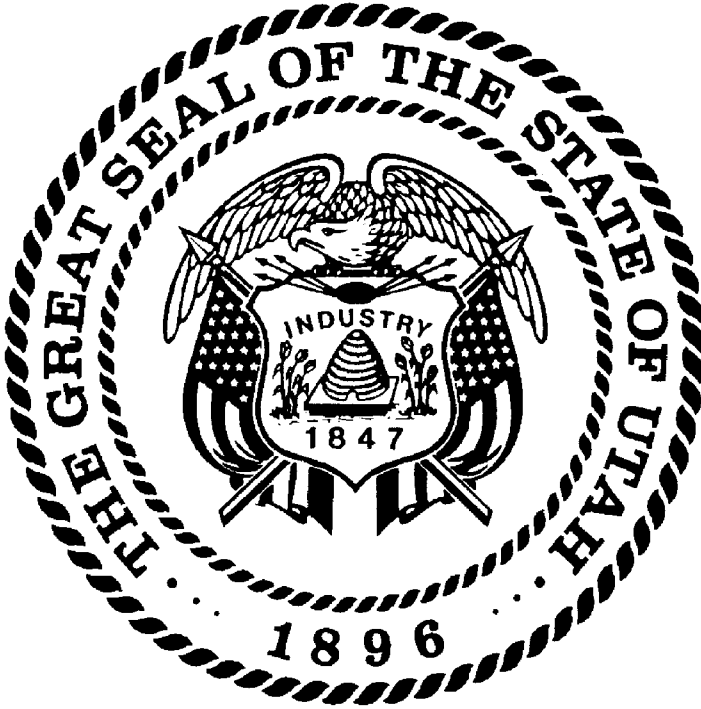
d) Means or Egress Analysis.

e) Fire Assembly Locator Sheet.

f) Exterior and Interior Accessibility Route.

g) Fire Stopping, Including Tested Design Number.

DEPARTMENT OF WORK FORCE SERVICES BOILER REPLACEMENTS DFCM #08187310



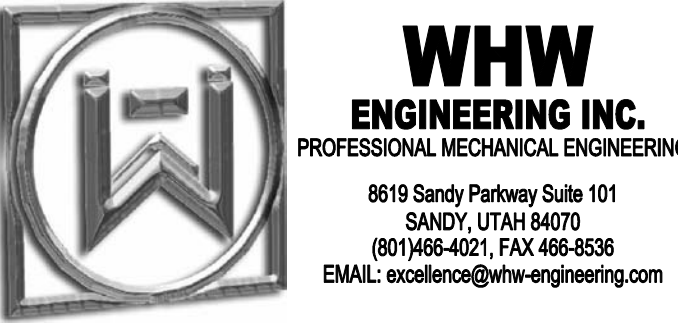
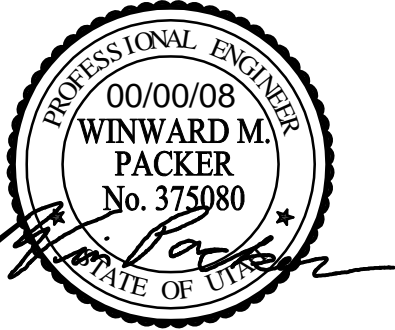
State of Utah—Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

4110 State Office Building / Salt Lake City, Utah 84114 / 538-3018



MECHANICAL ENGINEER  
WHW ENGINEERING, INC.  
8619 SANDY PARKWAY  
SUITE 101  
SANDY, UTAH 84075  
PHONE: (801) 466-4021 FAX: (801) 466-8536

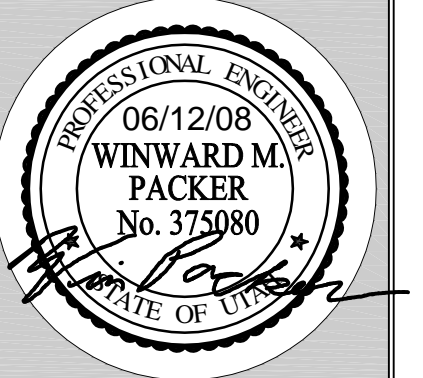


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PROFESSIONAL MECHANICAL ENGINEERING

8619 Sandy Parkway Suite 101  
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EMAIL: [excellence@whw-engineering.com](mailto:excellence@whw-engineering.com)

**Salt Lake City, Utah**

|                        |
|------------------------|
| PROJECT MANAGER:<br>WP |
| DRAWN BY:<br>LGD       |
| CHECKED BY:<br>SLW     |
| DATE:<br>06/12/08      |
| WHW JOB NO.:<br>08022  |
| SHEET TITLE            |



## SHEET NO.

# MG001

[illegible]

G-1

A - EACH DRAWING SHEET AND THE SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH ITEMS SHOWN AND NOTED ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN ALL PLACES. ITEMS IN SPECIFICATIONS OR DRAWINGS LISTED WHICH ARE DIFFERING IN EFFICIENCY OR QUALITY SHALL BE HELD TO THE GREATEST OF: EFFICIENCY, QUALITY OR GOVERNING CODE.

C - THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT WITH PROPER SERVICE ACCESS AND CLEARANCES ACCORDING TO MANUFACTURERS' RECOMMENDATIONS AND CODES. THE CONTRACTOR SHALL REVIEW SUPPLIERS BID PACKAGES FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS, SCHEDULES, AND DESIGN INTENT (ALL EQUIPMENT AND METHODS). THE CONTRACTOR SHALL REMOVE AND REINSTALL CORRECTLY AT HIS OWN EXPENSE ANY EQUIPMENT NOT IN COMPLIANCE.

**E - ANYTHING NOT CLEAR OR IN CONFLICT WILL BE EXPLAINED BY MAKING APPLICATION TO THE ENGINEER IN WRITING.**

G-2

ANY AND ALL ALTERATIONS TO THE SYSTEM SHOWN SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO CHANGES FOR APPROVAL. CONTRACTOR SHALL NOT START ANY CHANGES UNTIL NOTIFIED IN WRITING. IF CHANGES ARE MADE PRIOR TO APPROVAL CONTRACTOR SHALL TAKE ALL RESPONSIBILITY FOR THE CHANGES MADE AND ALL COSTS RELATING TO FAILURE OR REPLACEMENT OF ALTERATIONS.

G-3

**CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATIONS.**

G-4

THE WORKING DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND, OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR MECHANICAL EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL DRAWINGS.

G-5

THE INSTRUCTION TO "PROVIDE" ALSO INCLUDES INSTALLATION.

G-6

THE MECHANICAL CONTRACTOR SHALL VERIFY ALL MOTOR VOLTAGES BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS.

G-7

SUPPLIERS SHALL REVIEW ALL DRAWINGS AND THE SPECIFICATIONS PRIOR TO SUBMITTING PRICES TO THE CONTRACTOR. ALL QUESTIONS AND DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BIDDING.

G-8

CONTRACTOR SHALL THOROUGHLY REVIEW AND SIGN SUBMITTALS FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS PRIOR TO ENGINEERS REVIEW. SUPPLIERS SHALL HIGHLIGHT OR MARK ALL INFORMATION REQUIRED TO SHOW COMPLIANCE TO THE SPECIFICATIONS. ALL REQUESTED EXCEPTIONS TO THE SPECIFICATIONS, OR SCHEDULES SHALL BE CLEARLY NOTED AND EXPLAINED. SUBMITTAL REVIEW AND ACCEPTANCE IS FOR DESIGN CONCEPT ONLY, AND DOES NOT AT ANY TIME RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO MEET SPECIFICATIONS, CAPACITIES, OR DESIGN INTENT.

G-9

ALL MECHANICAL AND PLUMBING SHALL BE INSTALLED AND CONFORM TO THE 2006 EDITION OF THE IMC AND IPC WITH UTAH ANNOTATIONS.

G-10

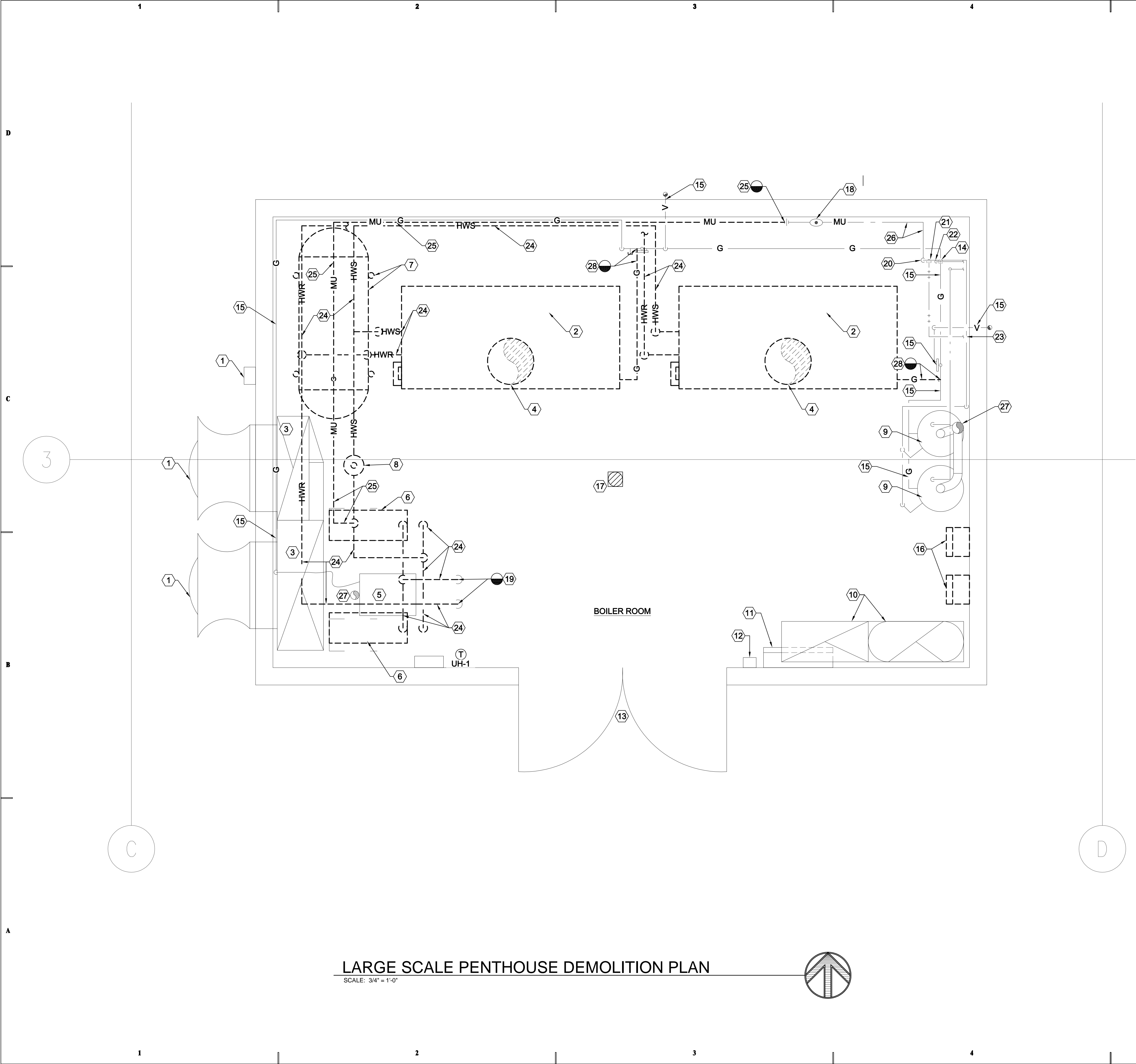
THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE DRAINING DOWN AND RE-FILLING OF THE EXISTING HOT WATER SYSTEM NECESSARY TO COMPLETE THE WORK OUTLINED BY THIS PROJECT. THIS INCLUDES PROVIDING THE REQUIRED CHEMICAL TREATMENT WHEN RE-FILLING THE SYSTEM.

G-11

ALL PIPING, EQUIPMENT AND MATERIALS SHALL BE AMERICAN MADE.  
"NO EXCEPTIONS."

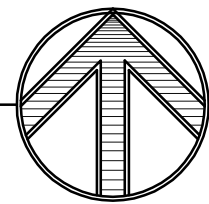
G-12

THIS CONTRACTOR SHALL CONTRACT WITH A DESIGN BUILD ELECTRICAL CONTRACTOR FOR THE DESIGN AND CONSTRUCTION OF THE ELECTRICAL PORTION OF THIS PROJECT. ELECTRICAL INSTALLATION AND DESIGN SHALL BE PER 2005 NEC.



LARGE SCALE PENTHOUSE DEMOLITION PLAN

SCALE: 3/4" = 1'-0"

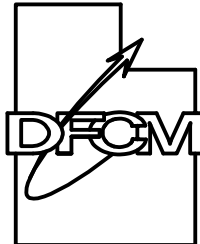


## SHEET NOTES

- EXISTING EXTERIOR WALL MOUNTED EXHAUST FANS AND DISCONNECTS SHALL REMAIN.
- REMOVE EXISTING BOILERS, ELECTRICAL, CONTROLS AND ALL ASSOCIATED ITEMS.
- EXISTING EXHAUST DUCT FROM BELOW SHALL REMAIN.
- REMOVE EXISTING 16"Ø FLUES THRU ROOF, INCLUDING FLASHING AND VENT CAP.
- EXISTING GAS FIRED UNIT HEATER AND FLUE THRU ROOF SHALL REMAIN.
- REMOVE EXISTING MAIN HOT WATER PUMPS, PIPING, VALVES, CONTROLS, SUPPORTS, ELECTRICAL ETC.
- REMOVE EXISTING COMPRESSION TANK, STRUCTURAL SUPPORTS, PIPING ETC.
- REMOVE EXISTING AIR SEPARATOR, HANGERS, PIPING ETC.
- EXISTING GAS FIRED WATER HEATERS SHALL REMAIN COMPLETE WITH ALL PIPING, VALVES, FLUES, ETC.
- EXISTING HIGH AND LOW COMBUSTION AIR DUCTS, PENTHOUSE, DUCTWORK ETC. SHALL REMAIN.
- EXISTING CONTROL PANEL CABINET SHALL REMAIN. CONTROL CONTRACTOR SHALL RE-DO OBSOLETE PUMP CONTROLS.
- EMERGENCY FIRE ALARM PUSH BUTTON STATION SHALL REMAIN.
- EXISTING 6'-0" DOUBLE ACCESS DOORS.
- EXISTING GAS LINE FROM BELOW AND THRU-FLOOR SHALL REMAIN.
- EXISTING GAS LINE, PRV, AND VENT PIPING SERVING CULINARY WATER HEATERS AND UNIT HEATER SHALL REMAIN.
- REPLACE EXISTING COMBINATION PUMP STARTERS AND DISCONNECTS.
- EXISTING FLOOR DRAIN SHALL REMAIN.
- EXISTING BACKFLOW PREVENTER SHALL REMAIN.
- LEAVE ENOUGH OF EXISTING HWS AND HWR PIPING EXTENDING ABOVE FLOOR TO MAKE NEW CONNECTIONS TO NEW PIPING.
- EXISTING COLD WATER SUPPLY FROM BELOW AND THRU-FLOOR SHALL REMAIN.
- EXISTING MIXED TEMPERATURE WATER TO BUILDING THRU-FLOOR SHALL REMAIN.
- EXISTING HOT WATER RECIRCULATING LINE FROM BELOW AND THRU-FLOOR SHALL REMAIN.
- EXISTING CULINARY HOT WATER MIXING VALVE SHALL REMAIN.
- REMOVE EXISTING HOT WATER SUPPLY AND RETURN PIPING, VALVES, CONTROLS, HANGERS ETC.
- REMOVE EXISTING MAKE-UP WATER FROM EXISTING UNION TO CONNECTION IN HWS. FIELD VERIFY.
- EXISTING MAKE-UP WATER PIPING SHALL REMAIN UP TO UNION.
- EXTEND EXISTING FLUE A MINIMUM OF 3'-0" ABOVE COMBUSTION AIR PENTHOUSE.
- REMOVE EXISTING GAS PIPING TO POINT SHOWN. FIELD VERIFY. CAP AT CONNECTION

## State of Utah

Department of Administrative Services



Division of Facilities  
Construction & Management  
4110 State Office Building  
Salt Lake City, Utah 84114  
Phone: (801) 538 - 3018  
Fax: (801) 538 - 3267

Internet: <http://www.dfcm.state.ut.us>

### CONSULTANTS



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8619 Sandy Parkway Suite 101  
SANDY, UTAH 84070  
(801) 466-4021, FAX 466-8536  
EMAIL: [excellence@whw-engineering.com](mailto:excellence@whw-engineering.com)

### PROJECT NAME & ADDRESS

**DEPARTMENT OF  
WORK FORCE  
SERVICES BLDG.  
BOILER  
REPLACEMENT.  
DFCM No. 08187310**

Salt Lake City, Utah

| MARK | DATE | REVISION |
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PROJECT MANAGER:

WP

DRAWN BY:

LGD

CHECKED BY:

SLW

DATE:

06/12/08

WHW JOB NO.:

08022

SHEET TITLE

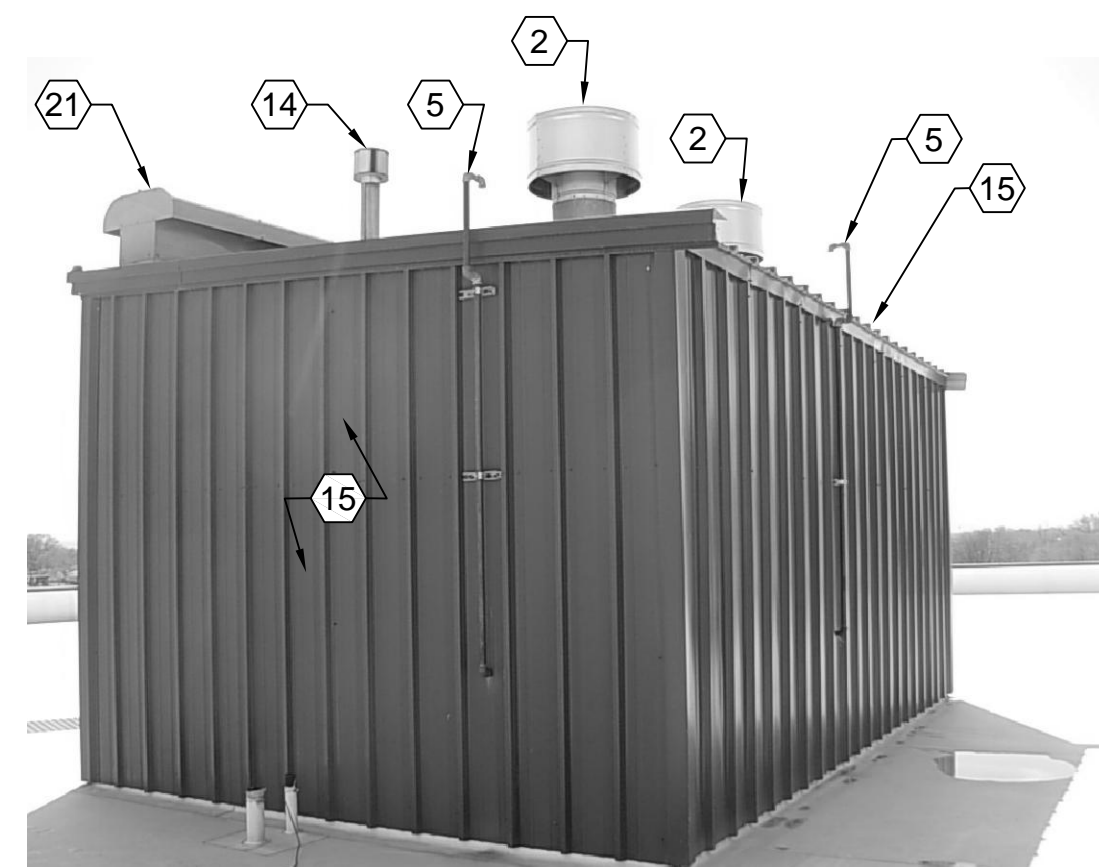
**LARGE SCALE PENTHOUSE  
DEMOLITION PLAN**

SHEET NO.

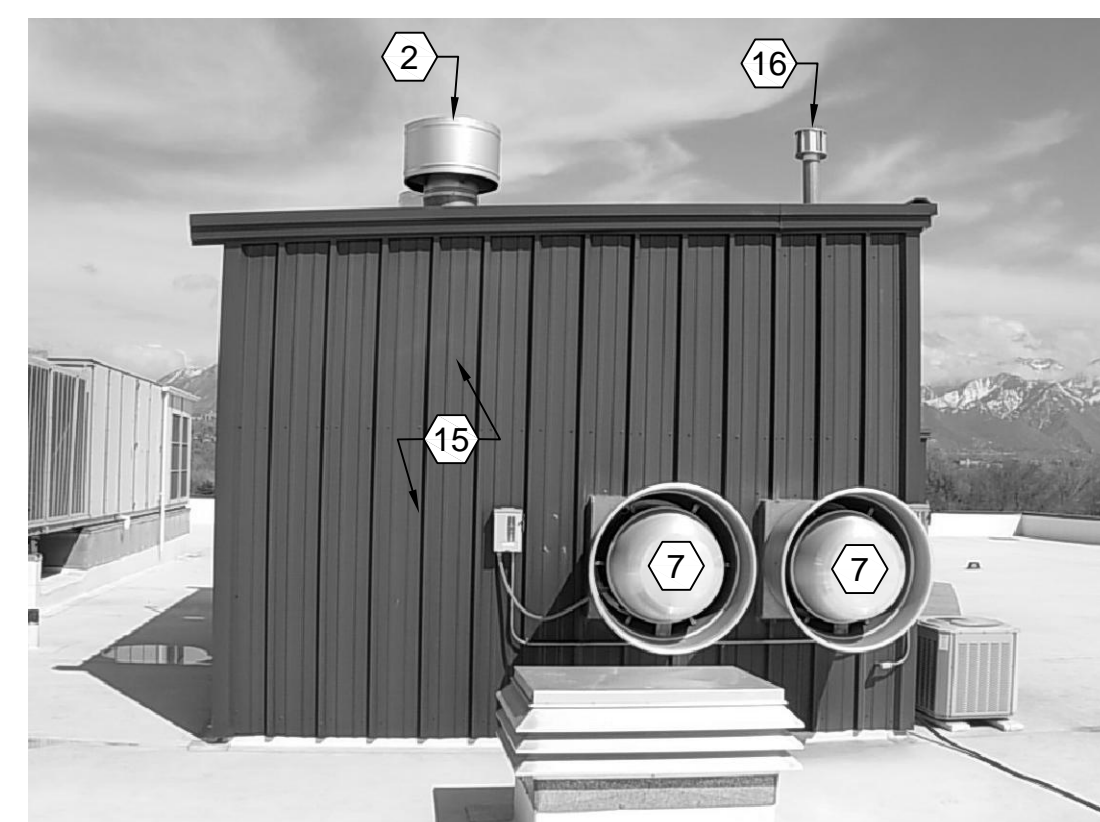
**MD401**



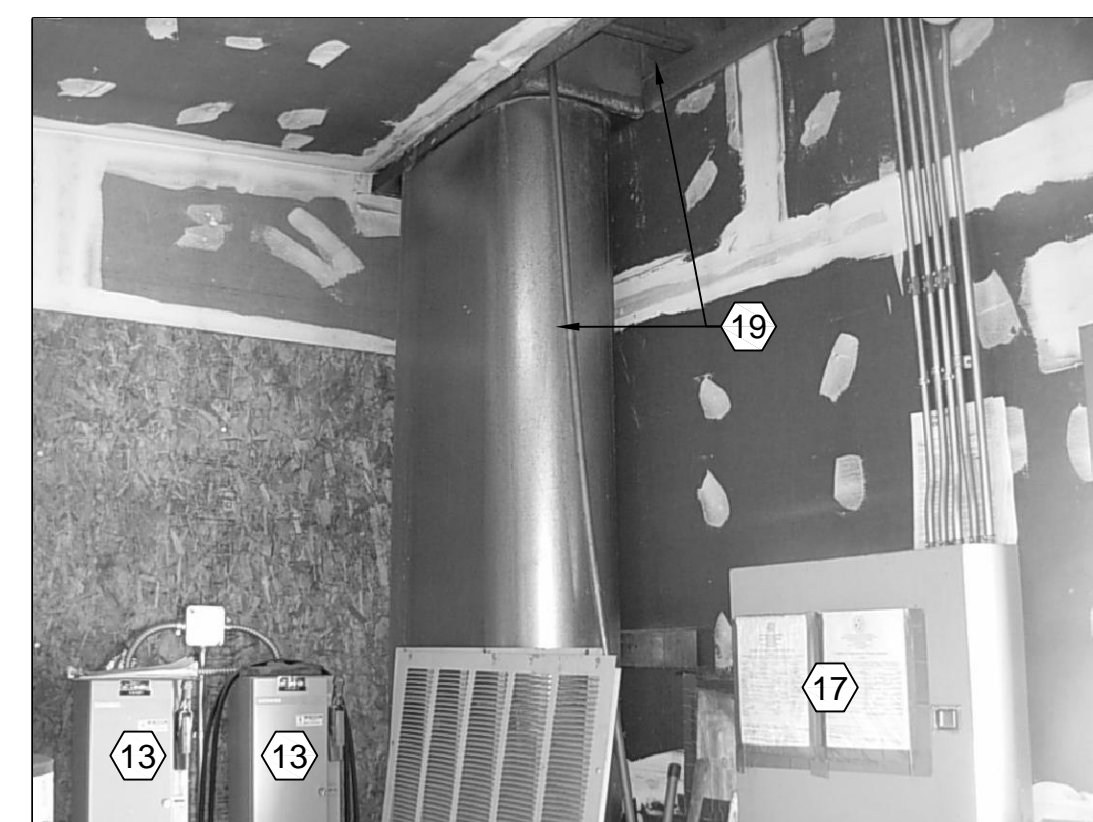




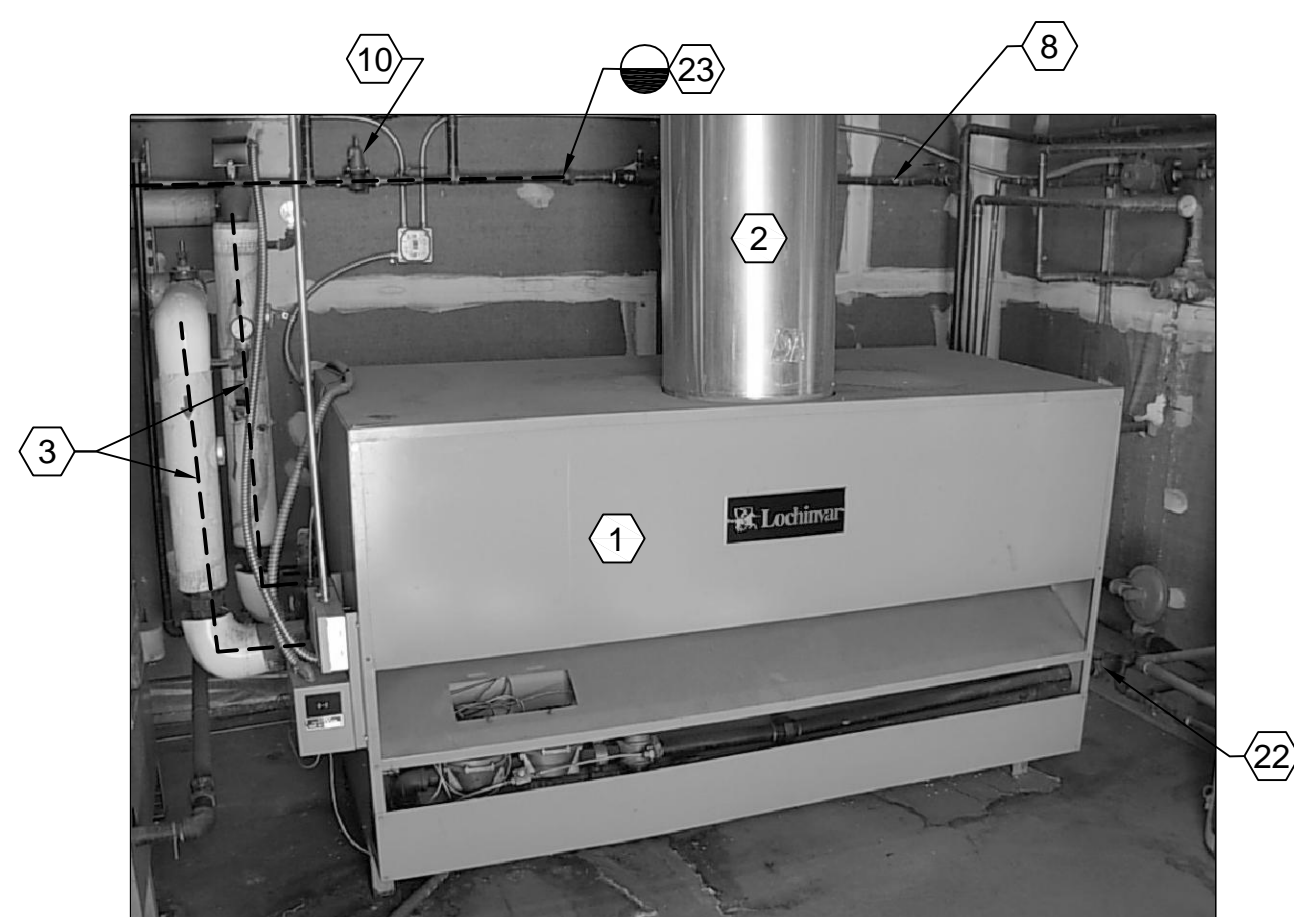
ROOF PENTHOUSE EQUIPMENT  
ROOM LOOKING SOUTHWEST



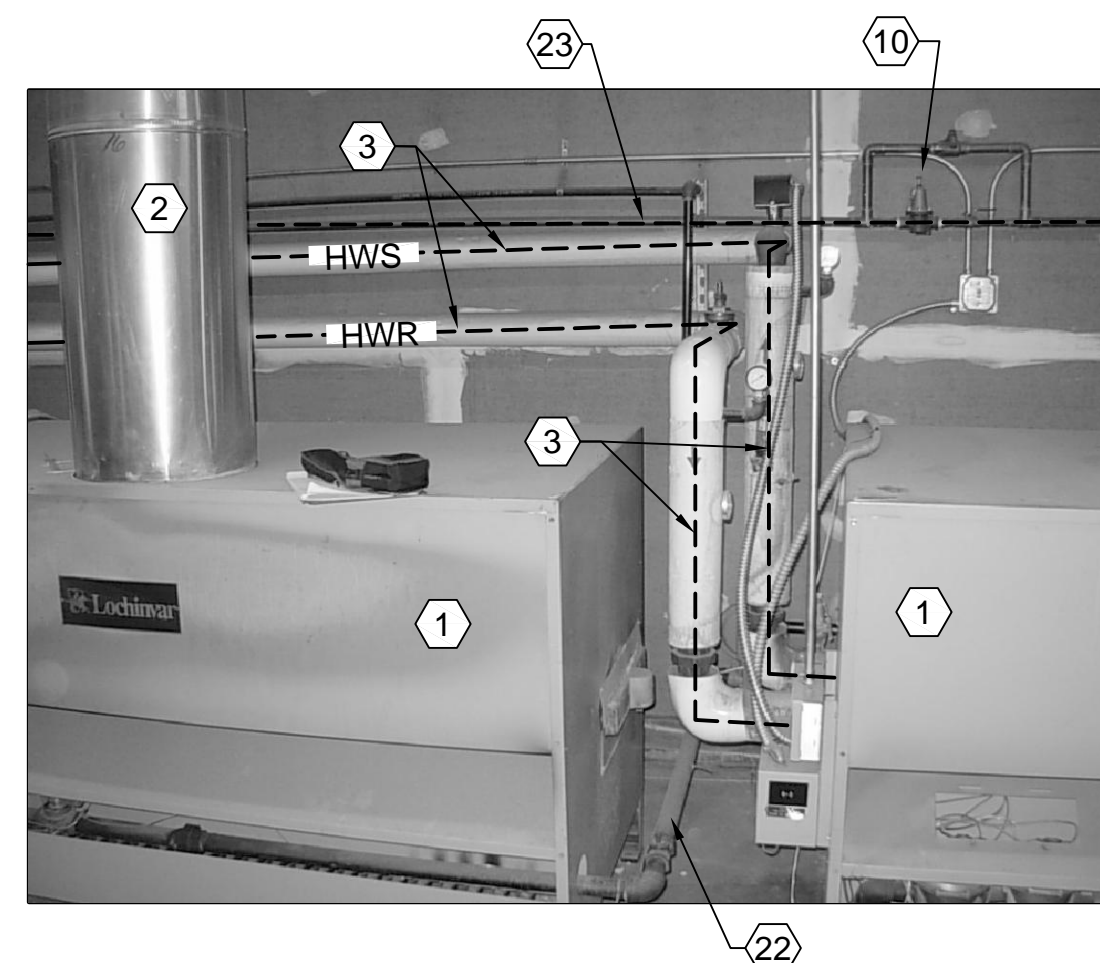
ROOF PENTHOUSE  
EQUIPMENT ROOM LOOKING EAST



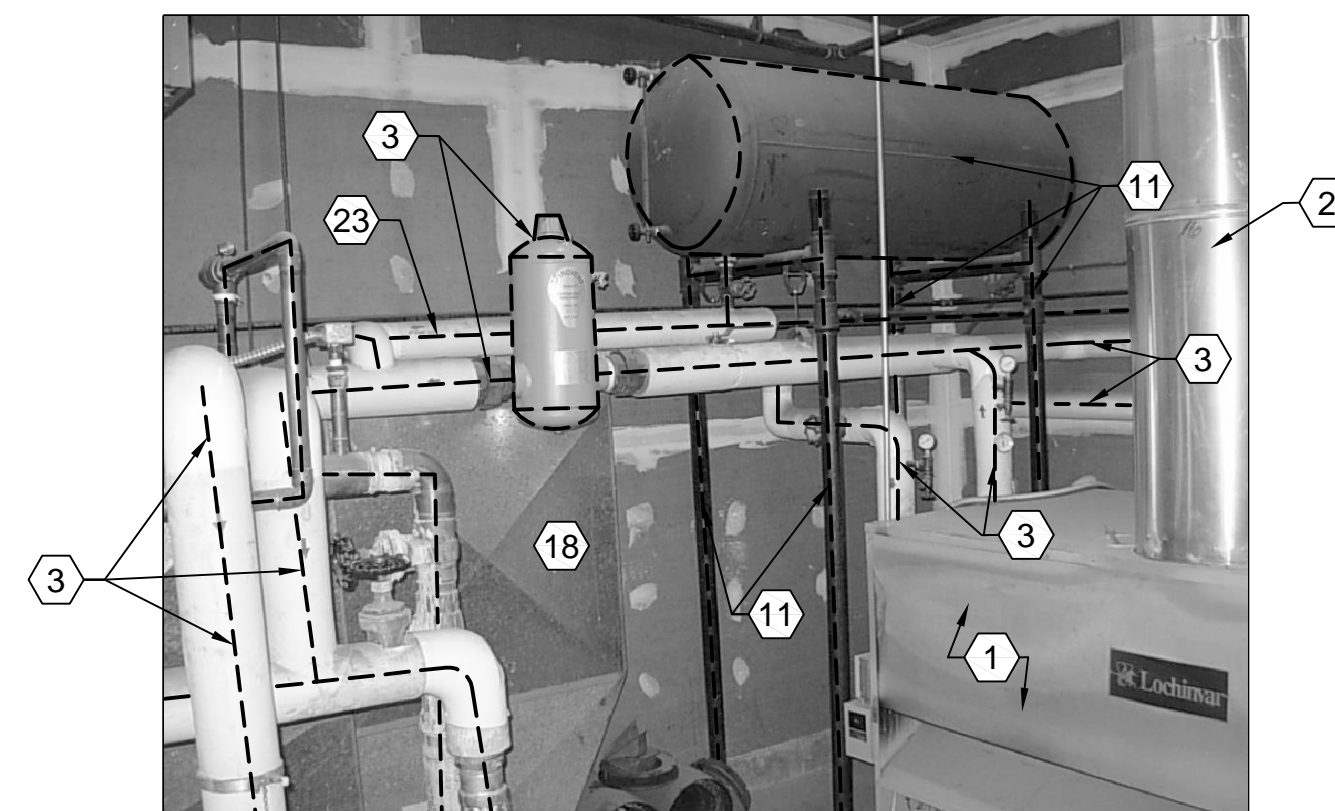
(D3) EQUIPMENT ROOM LOOKING SOUTHEAST



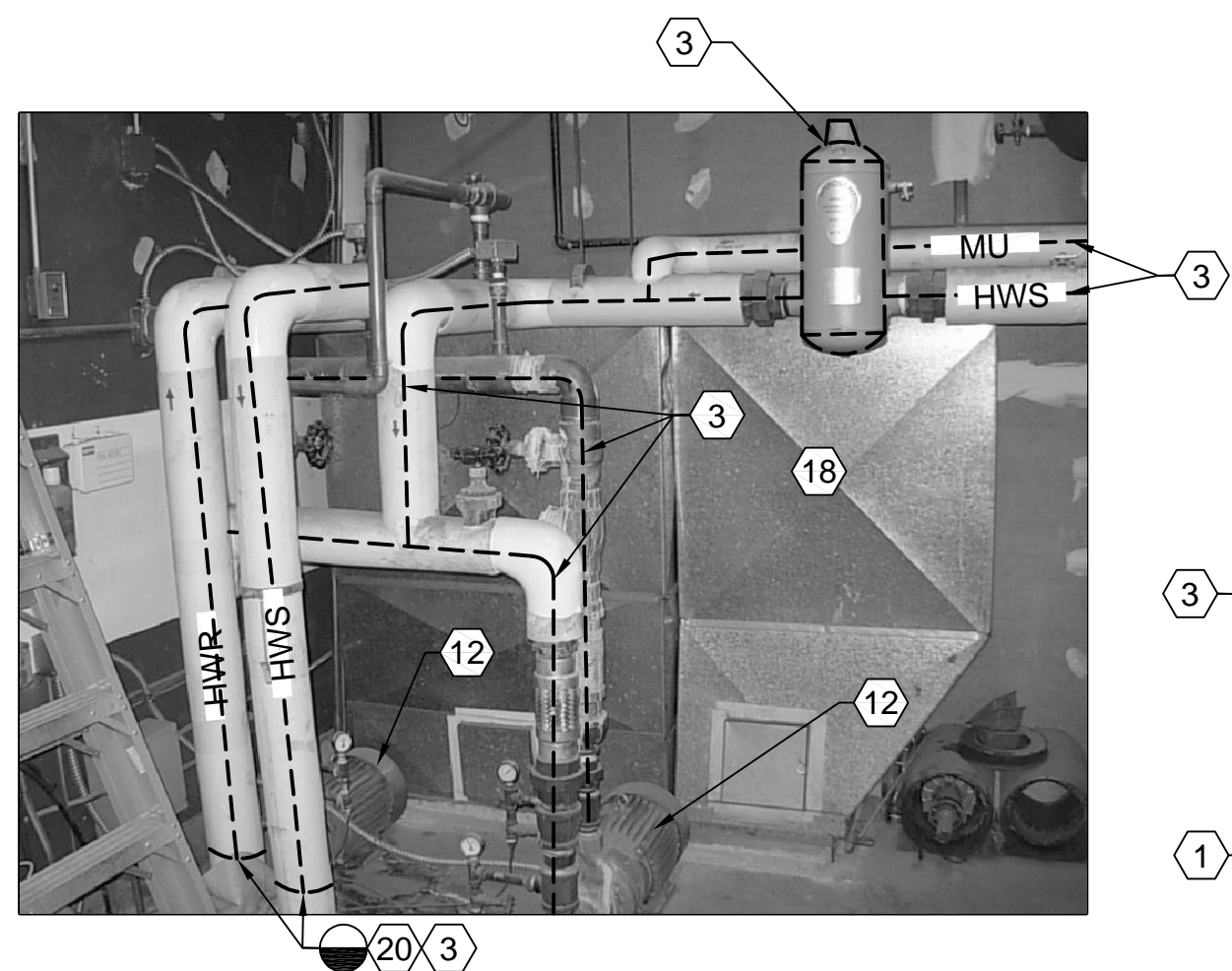
**B1** EXISTING BOILER #1



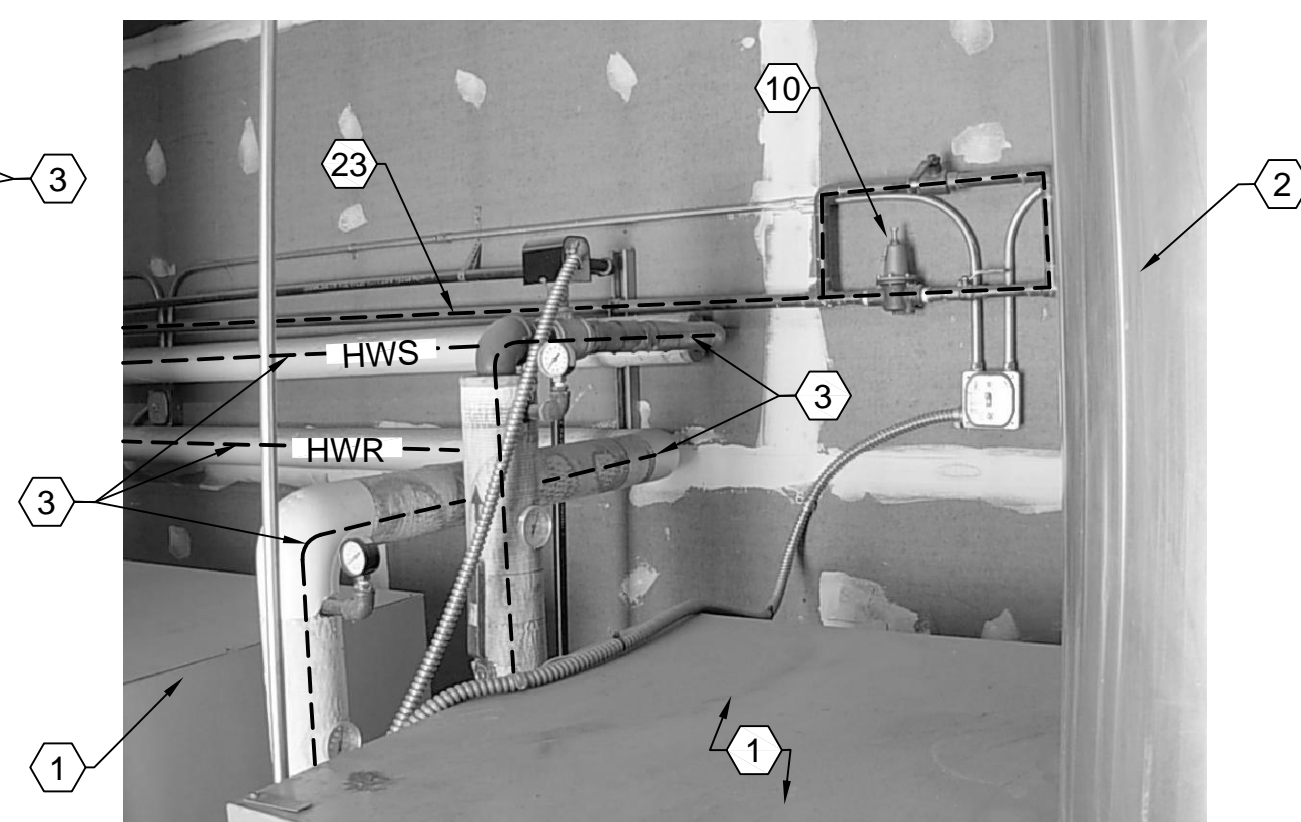
**B2** EXISTING BOILER #1 & #2



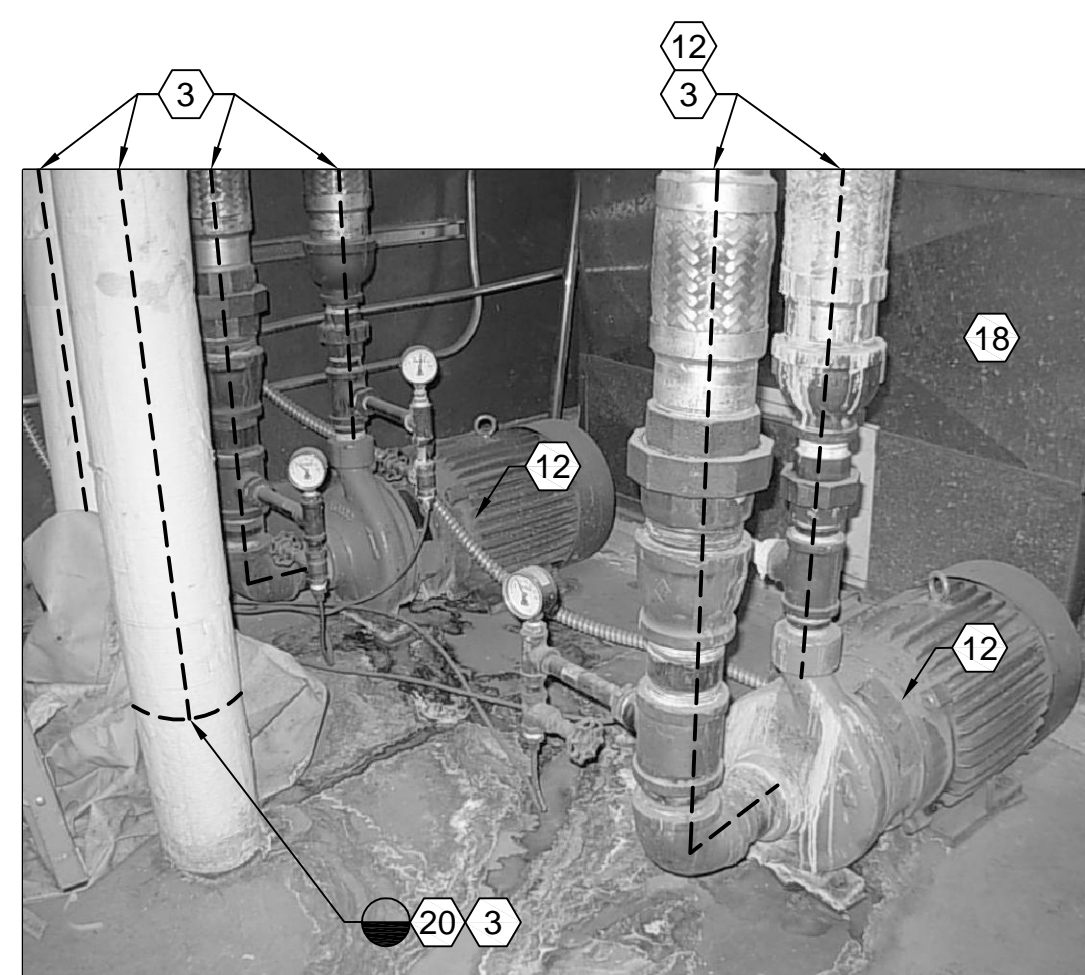
**B3** EQUIPMENT ROOM LOOKING NORTHWEST



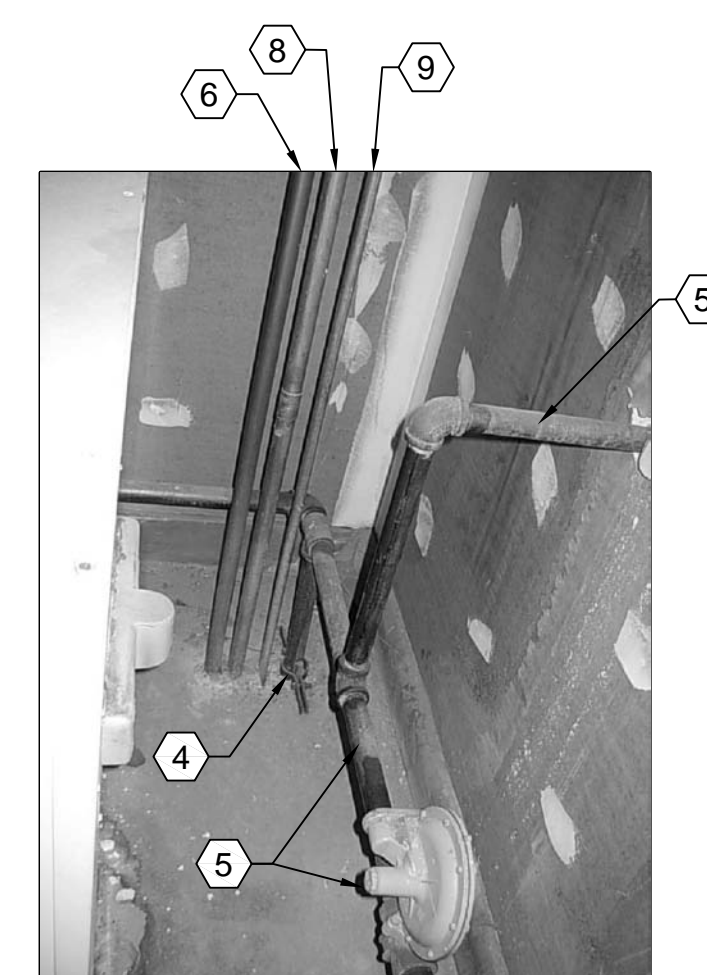
EQUIPMENT  
ROOM LOOKING WEST



EQUIPMENT  
ROOM LOOKING NORTH



EQUIPMENT ROOM  
SOUTHWEST CORNER



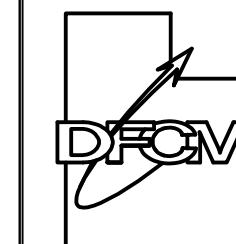
EQUIPMENT ROOM  
NORTHEAST CORNER

## SHEET NOTES

- ① REMOVE EXISTING BOILERS AND ALL ASSOCIATED PIPING, CONTROLS, ELECTRICAL ETC.
- ② REMOVE EXISTING BOILER FLUES.
- ③ REMOVE EXISTING HWS AND HWR PIPING VALVES, HANGERS, AIR SEPARATOR ETC.
- ④ EXISTING GAS PIPING FROM BELOW SHALL REMAIN.
- ⑤ EXISTING GAS PRV AND VENT PIPING SHALL REMAIN.
- ⑥ EXISTING CULINARY COLD WATER FROM BELOW SHALL REMAIN.
- ⑦ EXISTING SIDE WALL EXHAUST FANS SHALL REMAIN.
- ⑧ EXISTING MIXED WATER PIPING SHALL REMAIN.
- ⑨ EXISTING HOT WATER RE-CIRCULATING PIPING SHALL REMAIN.
- ⑩ REMOVE EXISTING MAKE-UP WATER PRV STATION.
- ⑪ REMOVE EXISTING COMPRESSION TANK AND PIPING SUPPORTS, PIPING ETC.
- ⑫ REMOVE EXISTING HW PUMPS, PIPING, SUPPORTS ETC.
- ⑬ REMOVE EXISTING PUMP STARTERS AND DISCONNECTS.
- ⑭ EXISTING FLUE FROM WATER HEATERS SHALL REMAIN. EXTEND FLUE TO A HEIGHT 3'-0" ABOVE COMBUSTION AIR PENTHOUSE.
- ⑮ EXISTING BOILER ROOM PENTHOUSE.
- ⑯ EXISTING FLUE FROM UNIT HEATER SHALL REMAIN. EXTEND FLUE TO A HEIGHT 3'-0" ABOVE COMBUSTION AIR PENTHOUSE.
- ⑰ EXISTING CONTROL PANEL SHALL REMAIN.
- ⑱ EXISTING EXHAUST DUCT SHALL REMAIN
- ⑲ EXISTING HIGH/LOW COMBUSTION AIR SHALL REMAIN.
- ⑳ REMOVE HWS AND HWR HIGH ENOUGH ABOVE FLOOR FOR CONNECTION TO NEW PIPING.
- ㉑ COMBUSTION AIR PENTHOUSE SHALL REMAIN.
- ㉒ REMOVE EXISTING GAS PIPING SERVING EXISTING BOILER No. 2 (B-2) AND CAP.
- ㉓ REMOVE EXISTING MAKE-UP WATER PIPING FROM EXISTING UNION TO CONNECTION IN HWS.

State of Utah

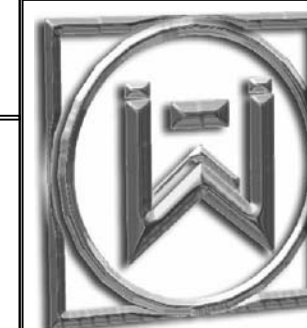
Department of Administrative Services



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PROJECT NAME & ADDRESS

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Salt Lake City, Utah

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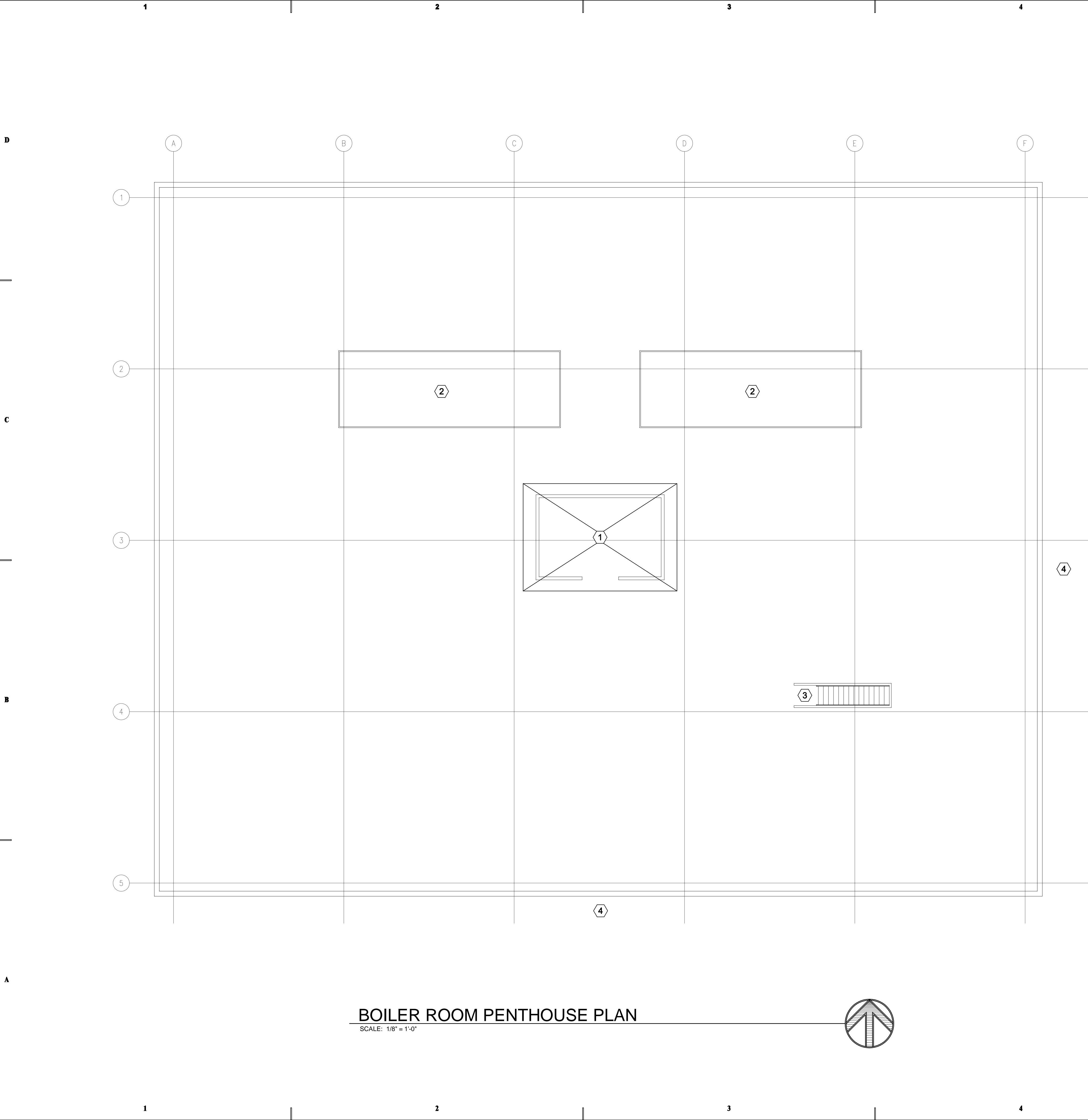
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WHW JOB NO.:  
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| SHEET TITLE |

## LARGE SCALE PENTHOUSE DEMOLITION PHOTOGRAPHS





### SHEET NOTES

1

SEE LARGE SCALE PLAN OF PENTHOUSE BOILER ROOM ON SHEET ME401 FOR NEW BOILERS, PIPING, AND PUMPS LAYOUT.

2

EXISTING ROOFTOP UNIT SHALL REMAIN.

3

EXISTING ROOF ACCESS.

4

EXISTING CRANE ACCESS.

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CONSULTANTS

W

WHW

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PROJECT MANAGER:

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DATE:

06/12/08

WHW JOB NO.:

08022

SHEET TITLE

BOILER ROOM

PENTHOUSE PLAN

SHEET NO.

ME101

PROFESSIONAL ENGINEER

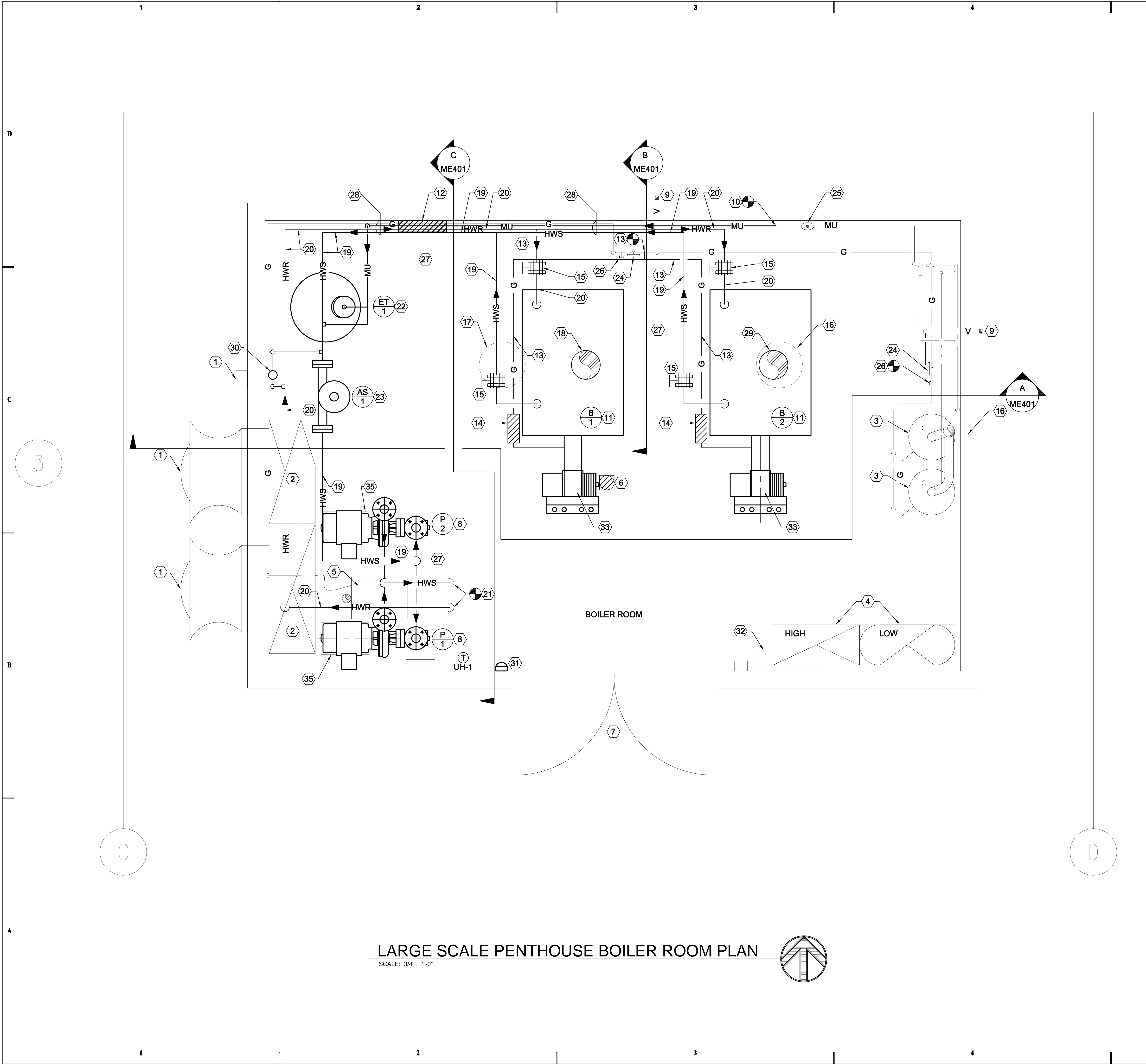
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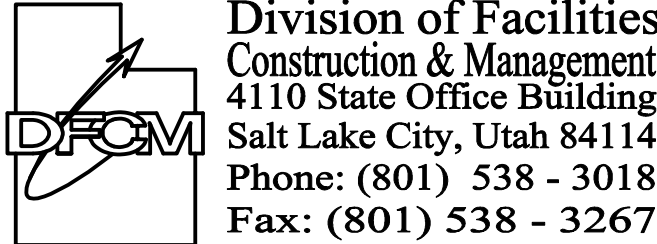
STATE OF UTAH



SHEET NOTES

- EXISTING EXTERIOR WALL MOUNTED EXHAUST FANS AND DISCONNECTS SHALL REMAIN.
- EXISTING EXHAUST DUCT FROM BELOW SHALL REMAIN.
- EXISTING GAS FIRED WATER HEATERS SHALL REMAIN COMPLETE WITH ALL PIPING, VALVES, FLUES, ETC.
- EXISTING HIGH AND LOW COMBUSTION AIR DUCT, PENTHOUSE, DUCTWORK ETC. SHALL REMAIN.
- EXISTING GAS FIRED UNIT HEATER AND FLUE THRU ROOF SHALL REMAIN.
- EXISTING FLOOR DRAIN SHALL REMAIN.
- EXISTING 6'-0" DOUBLE ACCESS DOORS.
- PROVIDE NEW BASE MOUNTED PUMPS AND ALL ASSOCIATED PIPING. SEE DETAIL A4/ME501.
- EXISTING GAS VENT SHALL REMAIN.
- TIE INTO EXISTING MAKE-UP WATER AT THIS APPROXIMATE LOCATION.
- PROVIDE NEW GAS FIRED BOILERS AND ALL ASSOCIATED ITEMS.
- PROVIDE NEW MAKE-UP WATER PRV STATION. SEE DETAIL ME701.
- PROVIDE NEW GAS CONNECTION AT THIS LOCATION UP STREAM OF EXISTING GAS PRV VALVE. EXTEND NEW 5# GAS PIPING TO THE TWO NEW BOILERS.
- CSI GAS TRAIN FOR 1,200,000 BTUH. SEE DETAIL A1/ME501. PROVIDED BY BOILER MANUFACTURER AND INSTALLED BY THIS CONTRACTOR.
- 3" - 150# BUTTERFLY VALVE WITH WHEEL HANDLE CONTROL.
- OUTLINE OF EXISTING FLUE OPENING IN ROOF. MODIFY TO ACCEPT NEW 10" DIA. FLUE.
- OUTLINE OF EXISTING FLUE OPENING IN ROOF. COVER AND PATCH WITH SAME MATERIALS AS EXISTING CONSTRUCTION.
- NEW ROOF OPENING FOR NEW 10" DIA. FLUE. SEE DETAIL A3/ME601.
- NEW 3" HWS.
- NEW 3" HWR.
- CONNECT NEW 3" HWS AND 3" HWR TO EXISTING PIPING ABOVE FLOOR. LEAVE ENOUGH PIPE DURING DEMOLITION FOR WELDED CONNECTION.
- NEW FLOOR MOUNTED EXPANSION TANK. SEE SCHEDULE SHEET ME601 AND DETAIL C1/ME601.
- NEW INLINE AIR SEPARATOR. SEE SCHEDULE SHEET ME601 AND DETAIL C2/ME501.
- EXISTING GAS PRV'S SHALL REMAIN.
- EXISTING MAKE-UP WATER BACKFLOW PREVENTER AND DRAIN SHALL REMAIN.
- CAP EXISTING GAS LINE THAT SERVED REMOVED BOILER.
- SEE FLOW SHEET ME701 FOR VALVES, PRESSURE GAUGES, THERMOMETERS, DRAINS, VALVES, ETC.
- PIPING SHALL BE SUPPORTED FROM WALL USING UNISTRUT. PIPING IS SHOWN OFFSET FOR CLARITY, PIPING IS ACTUALLY ONE ON TOP OF THE OTHER.
- FIT NEW 10" FLUE THROUGH EXISTING ROOF OPENING. SEE NOTE 16.
- CHEMICAL POT FEEDER, ATTACH TO WALL. SEE DETAIL A2/ME501.
- PROVIDE PUSH BUTTON MUSHROOM TYPE EMERGENCY BOILER SHUT-DOWN.
- EXISTING CONTROL PANEL SHALL REMAIN. CONNECT TO NEW BOILERS AND NEW PUMPS UPGRADE AS REQUIRED.
- FORCED DRAFT BURNER APPROXIMATELY 2'-2" FROM FACE OF BOILER.
- SUCTION DIFFUSER 3"x2".
- PROVIDE ISOLATION PUMP PADS FOR PUMPS.

State of Utah  
Department of Administrative Services



Internet: <http://www.dfcm.state.ut.us>

CONSULTANTS



**WHW**  
**ENGINEERING INC.**  
PROFESSIONAL MECHANICAL ENGINEERING  
8619 Sandy Parkway Suite 101  
SANDY, UTAH 84070  
(801) 466-4021, FAX 466-8636  
EMAIL: [excellence@whw-engineering.com](mailto:excellence@whw-engineering.com)

PROJECT NAME & ADDRESS

**DEPARTMENT OF  
WORK FORCE  
SERVICES BLDG.  
BOILER  
REPLACEMENT.  
DFCM No. 08187310**

Salt Lake City, Utah

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PROJECT MANAGER:

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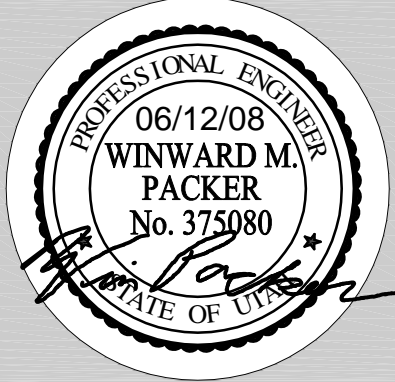
06/12/08

WHW JOB NO.:

08022

SHEET TITLE  
**LARGE SCALE PENTHOUSE  
BOILER ROOM PLAN**

SHEET NO.  
**ME401**



SHEET NOTES

- 1 CONNECT INTO EXISTING HWS AND HWR PIPING AT THIS APPROXIMATE LOCATION. FIELD VERIFY.
- 2 PROVIDE NEW EXPANSION TANK AND ALL ASSOCIATED PIPING. SEE DETAIL C1/ME601.
- 3 PROVIDE NEW AIR SEPARATOR AND ALL ASSOCIATED PIPING. SEE DETAIL C2/ME501.
- 4 PROVIDE NEW CLOSE COUPLED BASE MOUNTED PUMPS AND ALL ASSOCIATED PIPING. SEE DETAIL A4/ME501.
- 5 EXISTING EXHAUST DUCT AND FANS SHALL REMAIN.
- 6 EXISTING 5# GAS LINE FROM BELOW SHALL REMAIN.
- 7 EXISTING GAS PRESSURE REDUCING VALVES AND VENTS SHALL REMAIN.
- 8 EXISTING 4oz. GAS PIPING SHALL REMAIN.
- 9 NEW BOILER GAS TRAIN, TYPICAL OF TWO. SEE DETAIL A1/ME501.
- 10 NEW BURNER BY BOILER MANUFACTURER.
- 11 NEW GAS FIRED 85% EFFICIENT BOILER WITH FORCED DRAFT BURNER.
- 12 RELIEF VALVE PROVIDED BY BOILER MANUFACTURER INSTALLED BY CONTRACTOR IF SHIPPER LOOSE. ROUTE FULL SIZE.
- 13 CONNECT TO EXISTING PIPING UPSTREAM OF EXISTING PRV. ROUTE NEW 5# GAS PIPING TO THE NEW BOILERS. SEE SHEET ME101.
- 14 EXISTING GAS FIRED UNIT HEATER AND GAS PIPING SHALL REMAIN.
- 15 EXISTING HWS AND HWR TO BUILDING SHALL REMAIN.
- 16 PROVIDE NEW 3" HOUSEKEEPING PAD. PROVIDE SPRING ISOLATORS ON PUMP PADS.
- 17 UNISTRUT HANGER.
- 18 NEW MAKE-UP WATER LINE.

State of Utah  
Department of Administrative Services

Division of Facilities  
Construction & Management  
4110 State Office Building  
Salt Lake City, Utah 84114  
Phone: (801) 538 - 3018  
Fax: (801) 538 - 3267

Internet: <http://www.dfcm.state.ut.us>

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(801) 466-4021, FAX 466-8536  
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DFCM No. 08187310**

Salt Lake City, Utah

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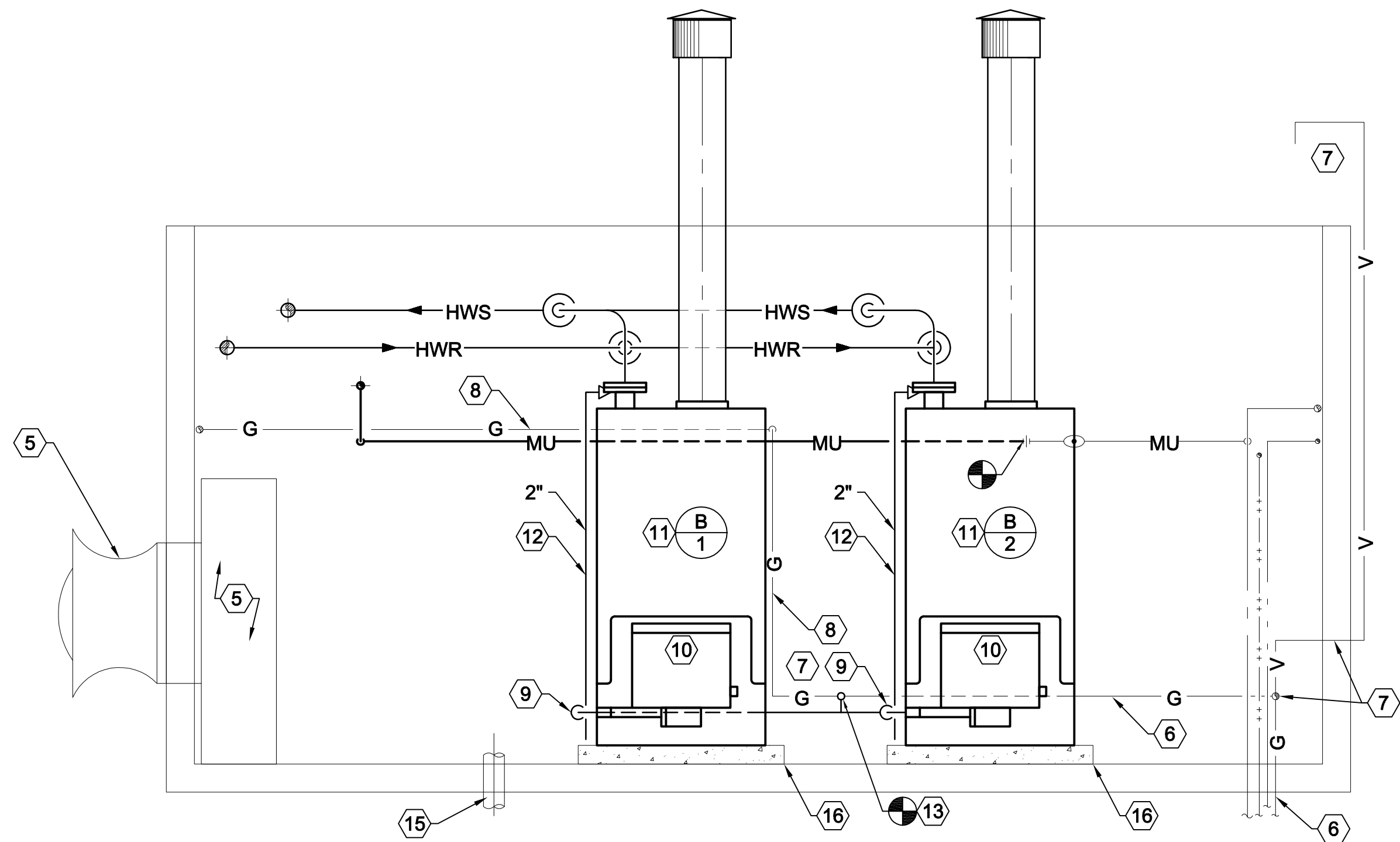
08022

SHEET TITLE

**LARGE SCALE PENTHOUSE  
ELEVATIONS**

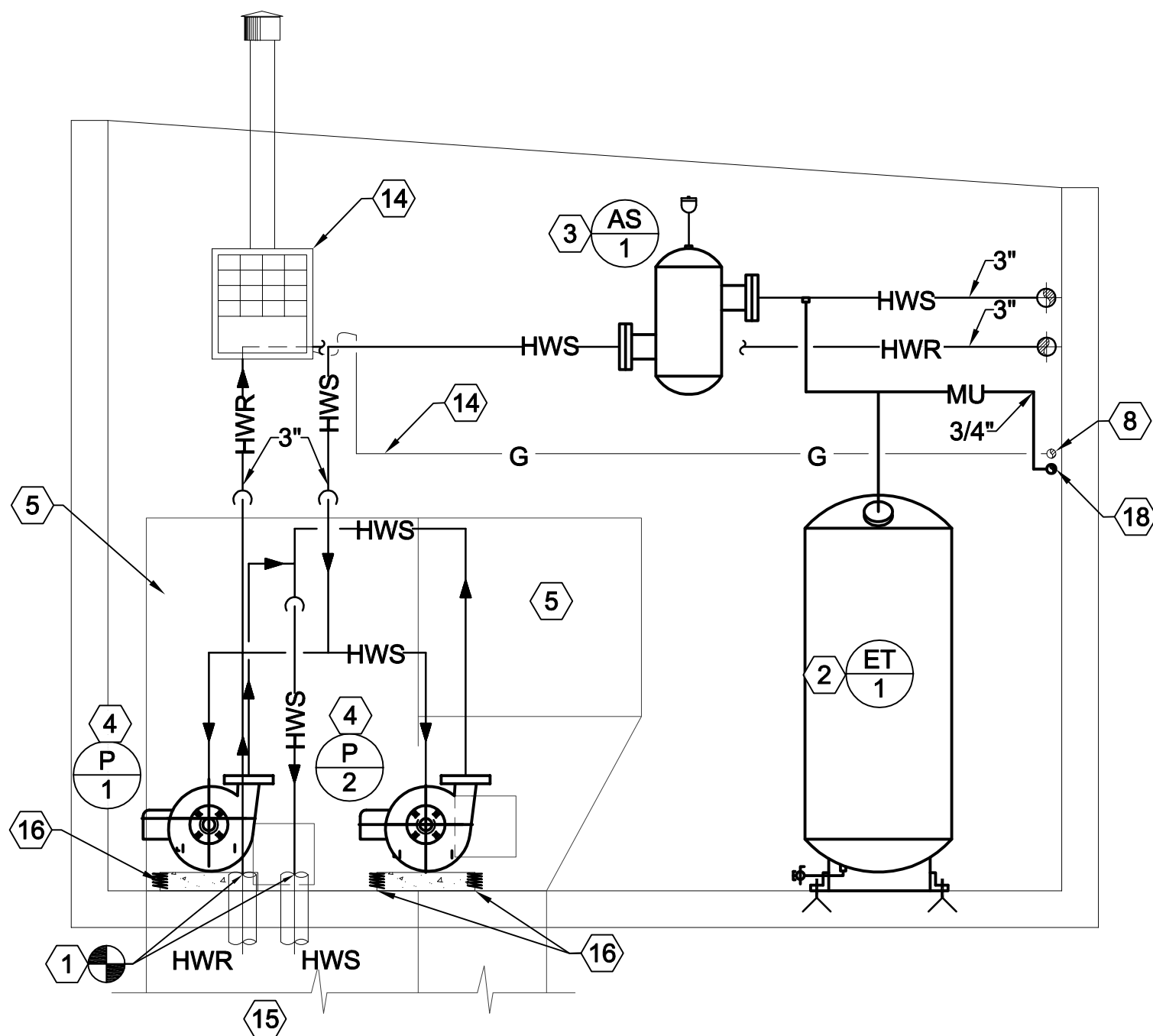
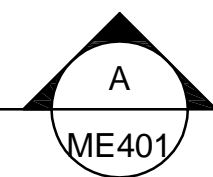
SHEET NO.

**ME402**



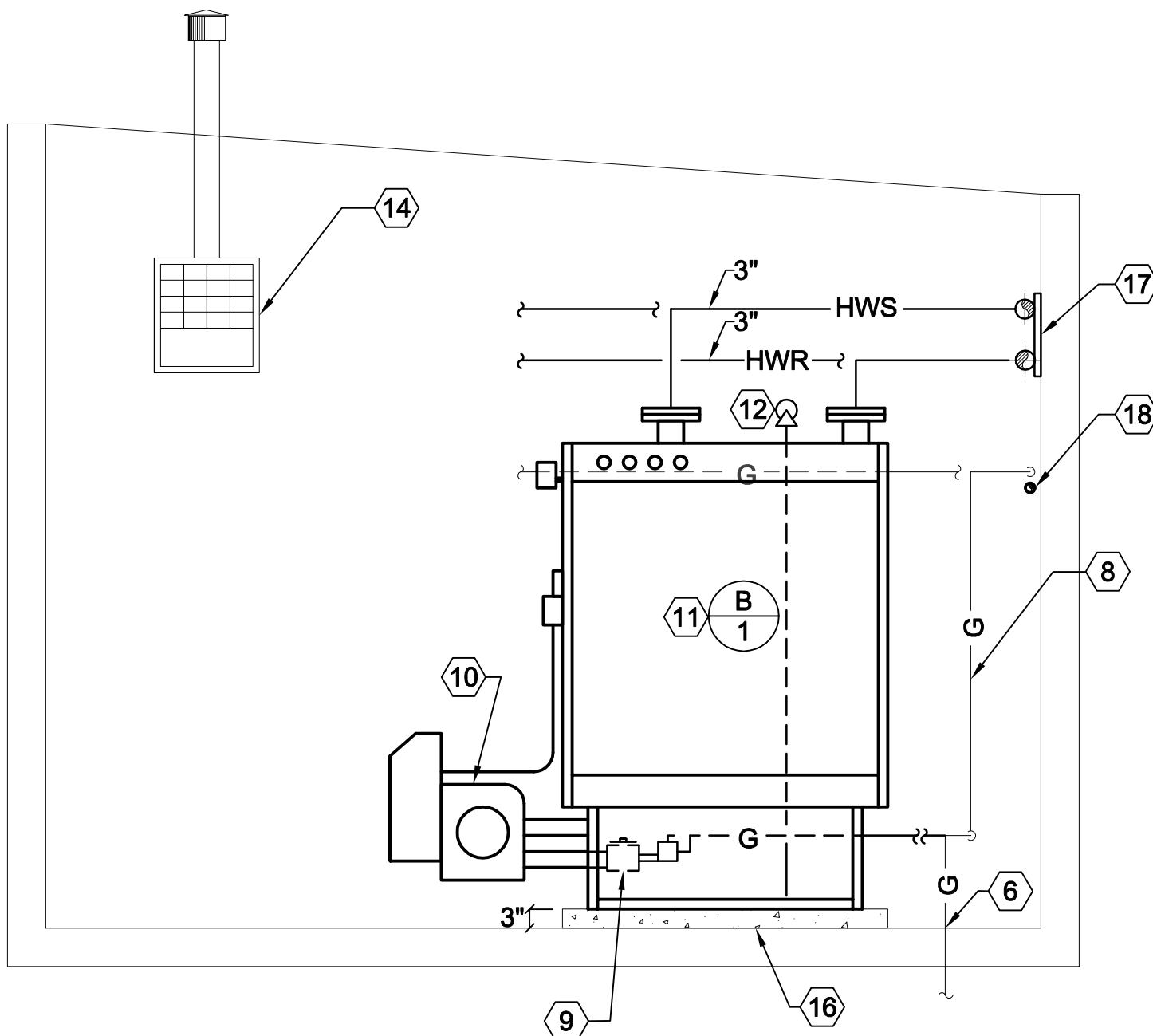
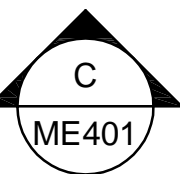
LARGE SCALE PENTHOUSE LOOKING NORTH

SCALE: 1/2" = 1'-0"



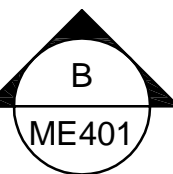
LARGE SCALE PENTHOUSE LOOKING WEST

SCALE: 1/2" = 1'-0"



LARGE SCALE PENTHOUSE LOOKING WEST

SCALE: 1/2" = 1'-0"



1

2

3

4

## State of Utah

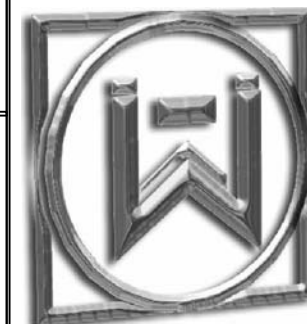
Department of Administrative Services



Division of Facilities  
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WHW JOB NO.:

08022

SHEET TITLE

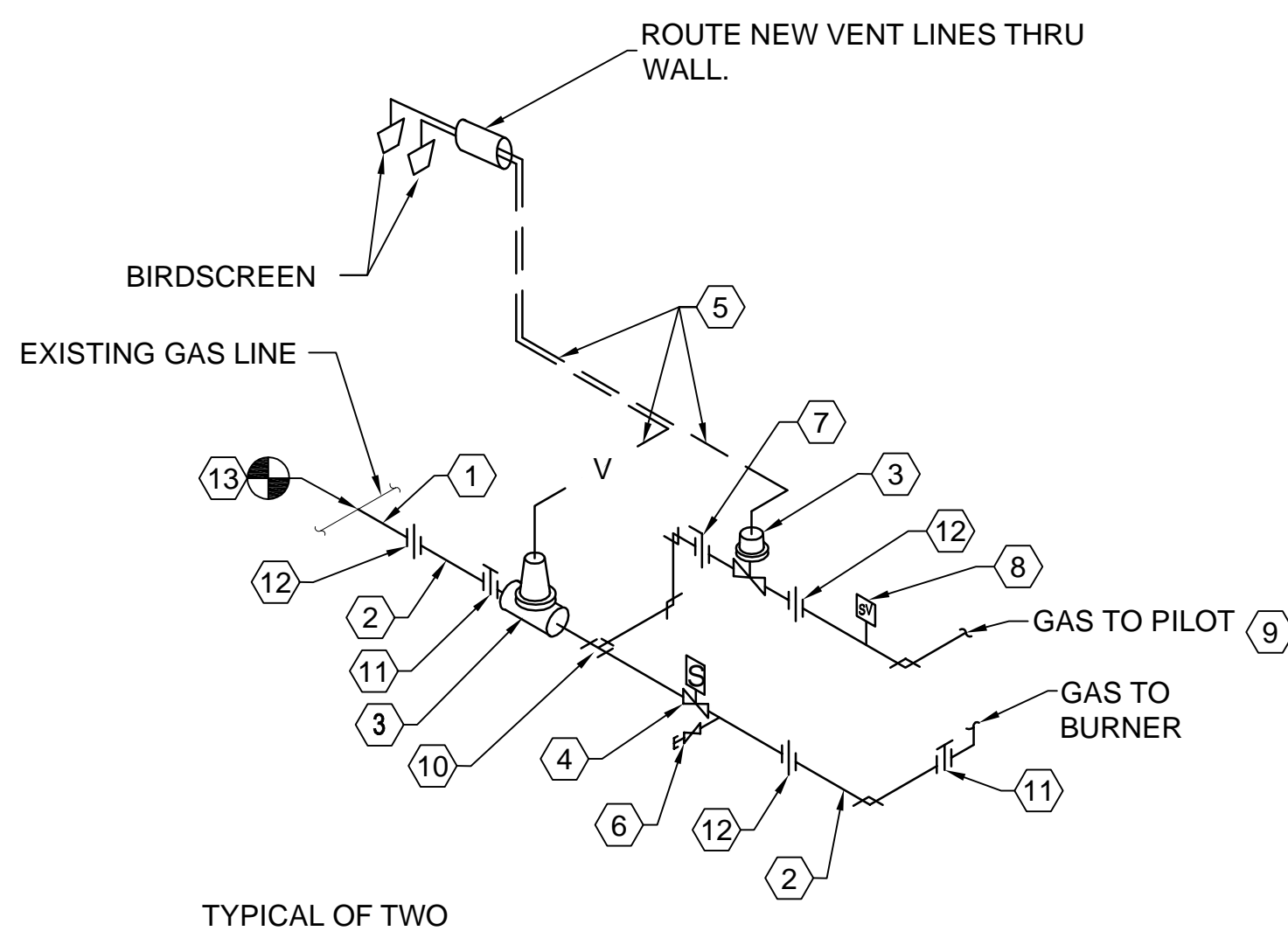
MECHANICAL DETAILS

SHEET NO.

ME501

## LEGEND

| NO. | ITEM  |
|-----|---|
| 1   | GAS INLET   |
| 2   | SUPPORT GAS TRAIN FROM FLOOR  |
| 3   | GAS PRESSURE REGULATOR  |
| 4   | MOTORIZED SAFETY VALVE  |
| 5   | VENT VALVE AND VENT   |
| 6   | TEST COCK   |
| 7   | SHUT-OFF COCK   |
| 8   | SOLENOID VALVE  |
| 9   | GAS TO PILOT  |
| 10  | GAS TAKE-OFF TO PILOT   |
| 11  | SHUT-OFF VALVE  |
| 12  | UNION   |
| 13  | CONNECT TO EXISTING GAS LINE<br>THIS LOCATION. SEE SHEET ME401.<br>FIELD VERIFY EXACT LOCATION. |



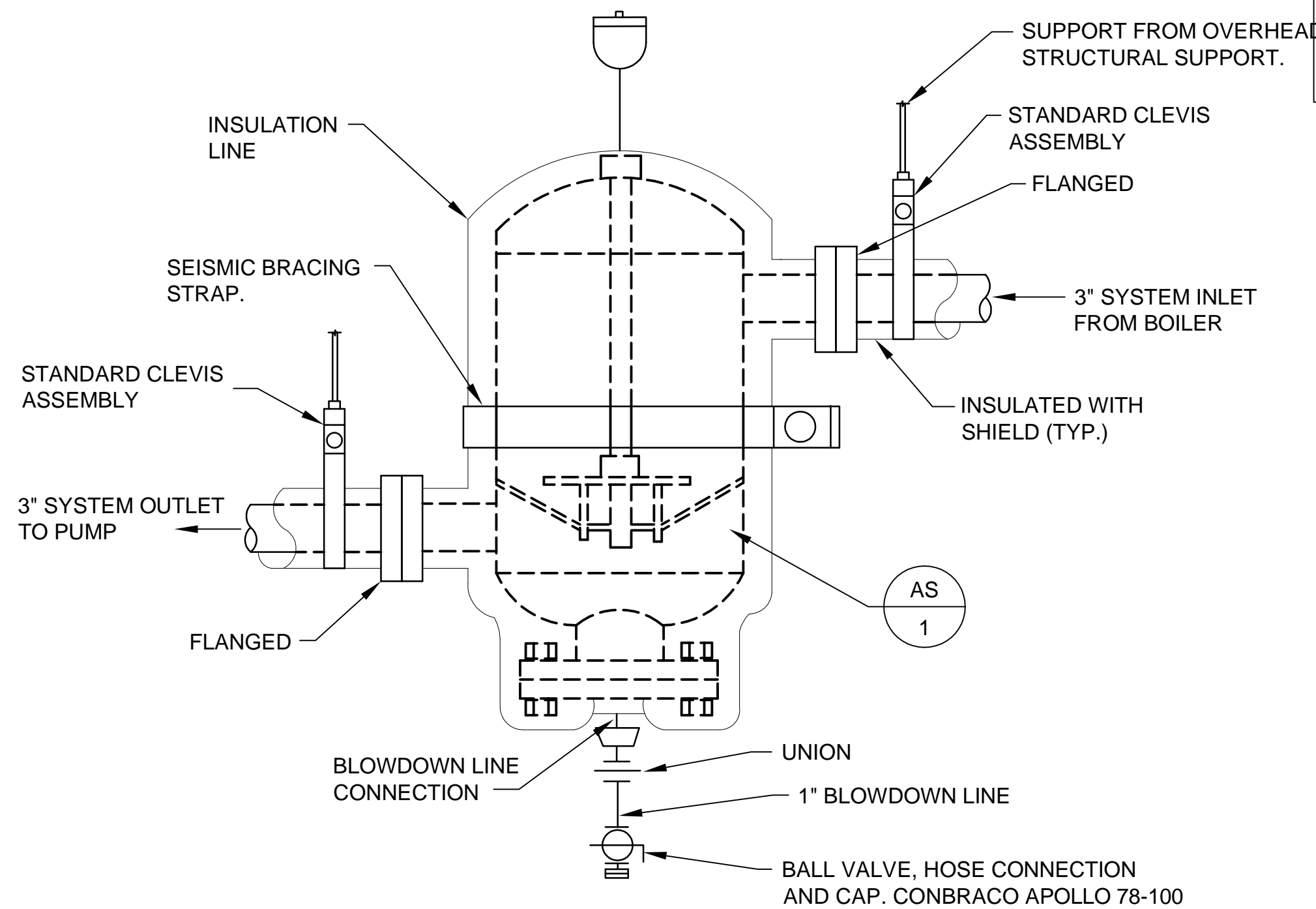
TYPICAL OF TWO

1,020,000 CSD-1

A1

AUTO-IGNITION GAS TRAIN DETAIL

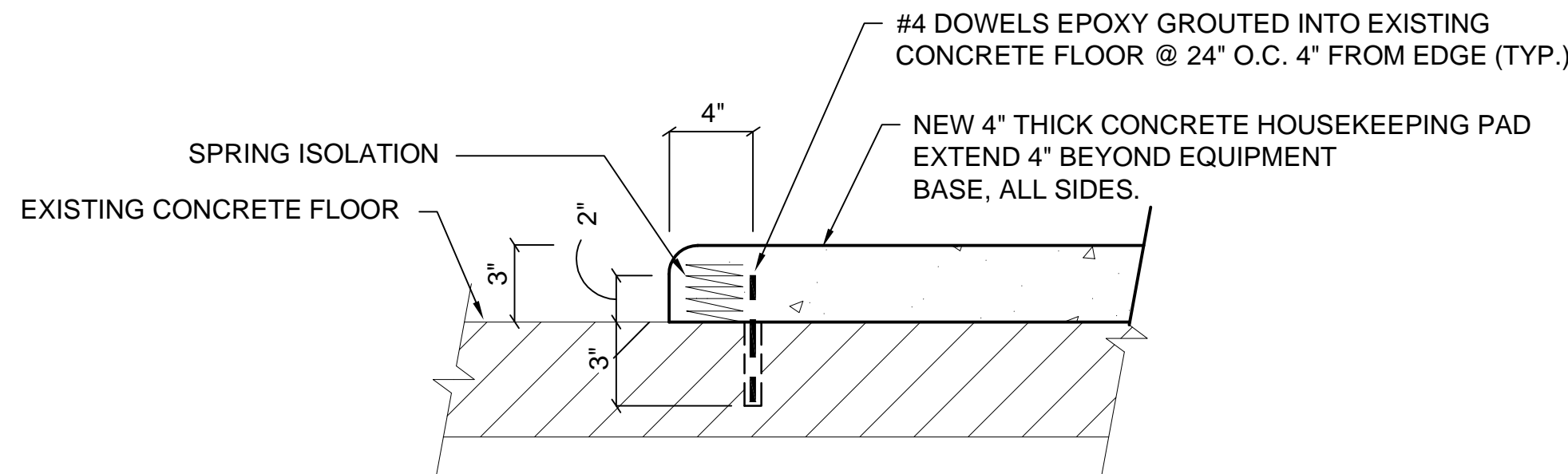
SCALE: NONE



C2

AIR SEPARATOR TANK DETAIL

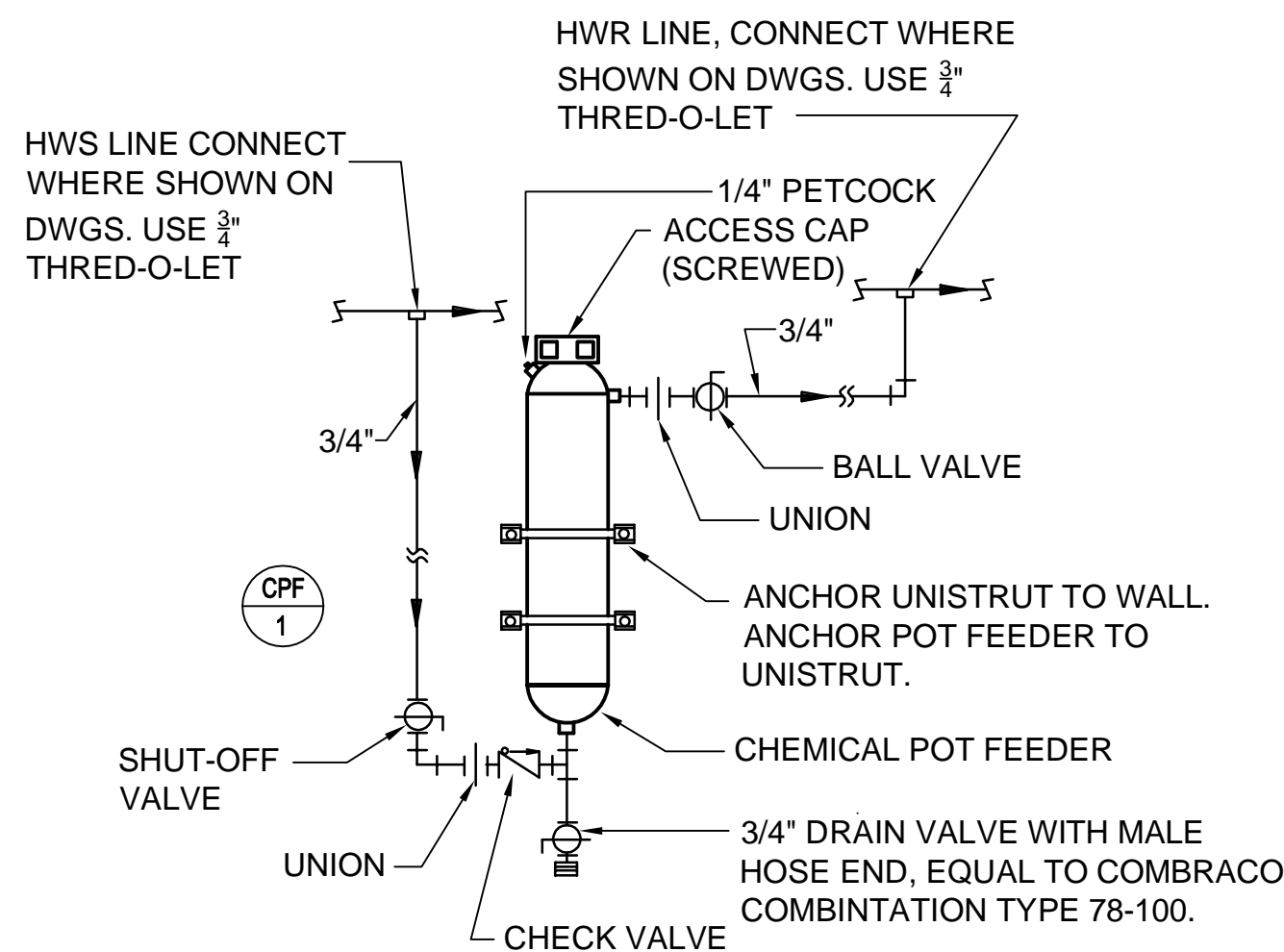
SCALE: NONE



B2

HOUSEKEEPING PAD DETAIL

SCALE: NONE



A2

CHEMICAL POT FEEDER AND PIPING DETAIL

SCALE: NONE

NOTE:  
PROVIDE NEW UNISTRUT WELDED  
TO EXISTING CEILING STRUCTURE  
FOR HANGER RODS. SUPPORT PIPING  
AT FLOOR ON UNISTRUT.

MOUNT PIPING TO WALL USING  
UNISTRUT TYPE HANGERS.

ATTACH TO  
STRUCTURE

LOCKING NUT

SUPPORT NUT

PIPE

PIPE

VAPOR BARRIER  
INSULATION

CLEVIS HANGER  
SINGLE HORIZONTAL RUNS  
WITHOUT INSULATION

CLEVIS HANGER  
SINGLE HORIZONTAL RUNS  
WITH VAPOR BARRIER INSULATION

LOCKING NUT

HEAVY DUTY  
CLEVIS HANGER

SUPPORT NUT

PIPE

16 GA. ZINC COATED  
SHEET STEEL SADDLE  
AT LEAST 12" LONG.  
CALCIUM SILICATE  
BLOCK TYPICAL

CALCIUM SILICATE  
BLOCK TYPICAL

16 GA. ZINC COATED  
SHEET STEEL SADDLE  
AT LEAST 12" LONG (TYP)

3" SYSTEM INLET  
FROM BOILER

INSULATED WITH  
SHIELD (TYP.)

SEISMIC BRACING  
STRAP.

STANDARD CLEVIS  
ASSEMBLY

INSULATION  
LINE

SUPPORT FROM OVERHEAD  
STRUCTURAL SUPPORT.

FLANGED

3" SYSTEM OUTLET  
TO PUMP

FLANGED

BLOWDOWN LINE  
CONNECTION

UNION

1" BLOWDOWN LINE

BALL VALVE, HOSE CONNECTION  
AND CAP. CONBRACO APOLLO 78-100

AS  
1

SCALE: NONE

SCALE: NONE

SCALE: NONE

SCALE: NONE

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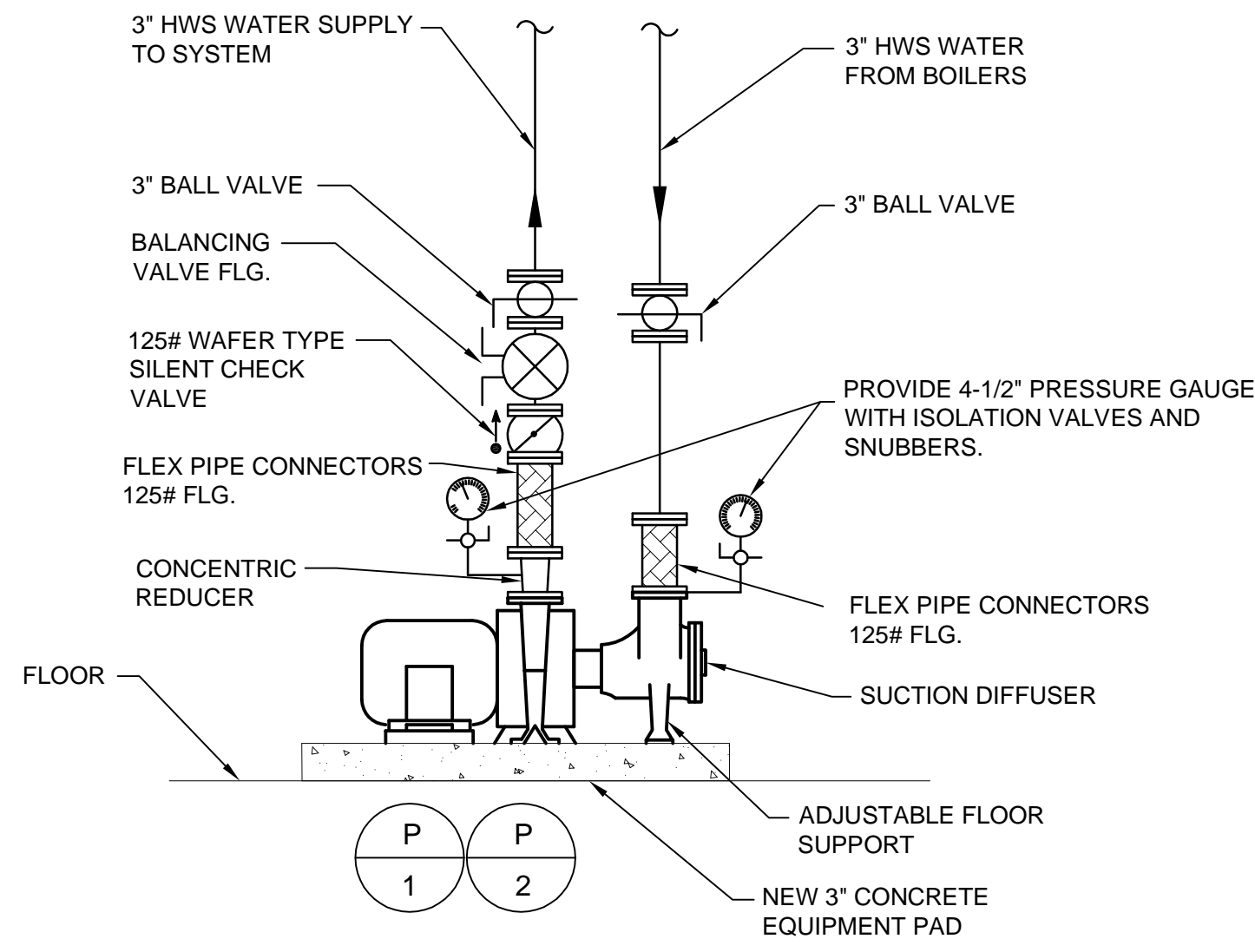
SCALE: NONE

SCALE: NONE

A4



BASE MTD. PUMP PIPING DETAIL


SCALE: NONE

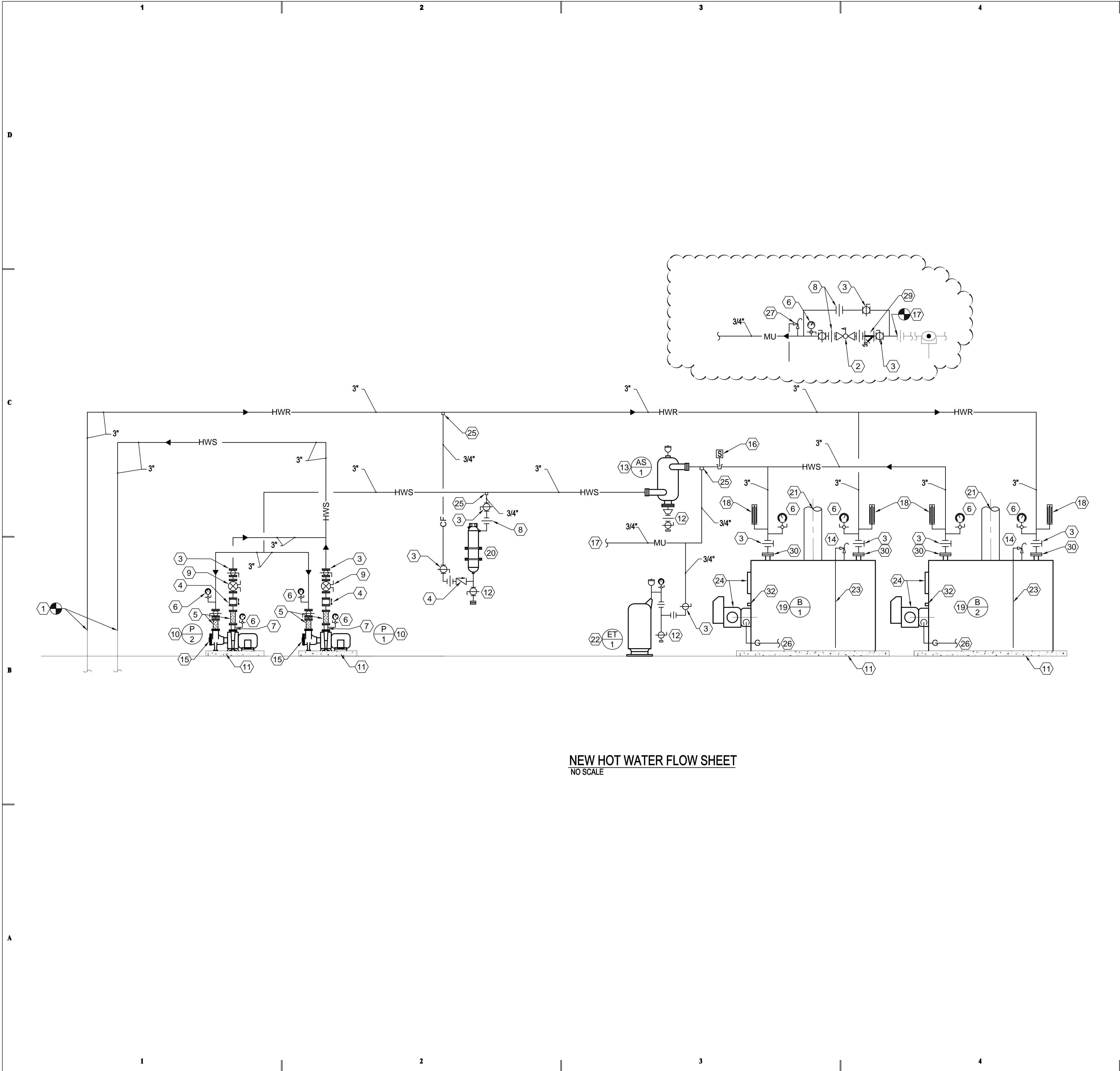






| PUMP SCHEDULE   |                          |     |          |      |              |                |            |       |     |                         |              |                |
|---|--------------------------|-----|----------|------|--------------|----------------|------------|-------|-----|-------------------------|--------------|----------------|
| SYMBOL  | TYPE                     | GPM | FT. HEAD | RPM  | SUCTION SIZE | DISCHARGE SIZE | MOTOR      |       |     | SIZE                    | SERVICE      | SCHEDULE NOTES |
|   |                          |     |          |      |              |                | V - Ø - Hz | HP    | RPM |                         |              |                |
|  | BASE MTD.<br>END SUCTION | 140 | 100      | 1750 | 3            | 2-1/2          | 208/3/60   | 7-1/2 | -   | BELL &<br>GOSSETT<br>2E | HOT<br>WATER | 1,2,3,4        |
|  | BASE MTD.<br>END SUCTION | 140 | 100      | 1750 | 3            | 2-1/2          | 208/3/60   | 7-1/2 | -   | BELL &<br>GOSSETT<br>2E | HOT<br>WATER | 1,2,3,4        |
| 1. PROVIDE REMOVABLE INSULATION KIT AROUND PUMP SECTION.                            |                          |     |          |      |              |                |            |       |     |                         |              |                |
| 2. SEE SPECIFICATIONS FOR OTHER APPROVED MANUFACTURER'S.                            |                          |     |          |      |              |                |            |       |     |                         |              |                |
| 3. PUMP SCHEDULE REFLECTS A BELL AND GOSSETT MODEL 2E CLOSE COUPLED.                |                          |     |          |      |              |                |            |       |     |                         |              |                |
| 4. SEE DETAIL A4/ME501.   |                          |     |          |      |              |                |            |       |     |                         |              |                |

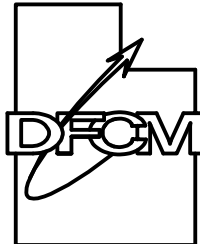
| EXPANSION TANK SCHEDULE   |                            |           |          |                         |                   |                   |
|---|----------------------------|-----------|----------|-------------------------|-------------------|-------------------|
| SYMBOL  | ACCEPT TANK<br>VOLUME GAL. | LENGTH    | DIAMETER | OPERATION<br>WEIGHT LBS | MAKE AND<br>MODEL | SCHEDULE<br>NOTES |
|  | 128 GALLONS                | 5'-4-3/4" | 24"      | 1184                    | B&G<br>B-400      | 1,2               |
| 1. FOR OTHER APPROVED MANUFACTURERS SEE SPECIFICATIONS.<br>2. SEE DETAIL C1/ME601.    |                            |           |          |                         |                   |                   |



NEW HOT WATER FLOW SHEET  
NO SCALE

SHEET NOTES:

- 1 EXISTING HOT WATER SUPPLY AND RETURN PIPING. SEE BOILER ROOM PLAN ME401 FOR CONTINUATION.
- 2 PRESSURE REGULATOR VALVE.
- 3 LINE SIZE SHUT-OFF VALVES. BALL VALVES TO 2" - BUTTERFLY VALVE 2-1/2" AND LARGER.
- 4 CHECK VALVE. WAFER TYPE (TYPICAL)
- 5 FLEX CONNECTION. (TYPICAL)
- 6 WATER PRESSURE GAUGE. 4-1/2" DIA. LIQUID FILLED WITH SNUBBER AND NEEDLE VALVE.
- 7 REDUCER. (TYPICAL)
- 8 UNION. (TYPICAL)
- 9 BALANCING VALVE. (TYPICAL)
- 10 NEW HOT WATER MAIN SYSTEM PUMPS. SEE SCHEDULE.
- 11 3" HIGH HOUSEKEEPING CONCRETE PAD. SEE DETAIL B2/ME501. USE SPRING ISOLATORS FOR PUMP PADS.
- 12 PROVIDE SHUT-OFF BALL VALVE AND HOSE CONNECTION.
- 13 PROVIDE NEW AIR SEPARATOR HUNG FROM STRUCTURE. SEE DETAIL C2/ME501.
- 14 PRESSURE RELIEF VALVE. PROVIDED BY BOILER MANUFACTURER AND INSTALLED BY CONTRACTOR.
- 15 PROVIDE NEW SUCTION DIFFUSER.
- 16 TEMPERATURE SENSOR.
- 17 EXTEND NEW 3/4" MAKE UP WATER LINE FROM EXISTING MAKE-UP WATER STATION TO SYSTEM.
- 18 TEMPERATURE GAUGE - 9" LONG 0 TO 225°F.
- 19 PROVIDE NEW BENT TUBE, FORCED DRAFT GAS FIRED BOILERS. SEE BOILER SCHEDULE FOR CAPACITIES.
- 20 PROVIDE NEW CHEMICAL POT FEEDER. SEE DETAIL A2/ME501.
- 21 NEW 10" DIA. FLUE THRU ROOF.
- 22 PROVIDE NEW EXPANSION TANK. SEE DETAIL C1/ME601.
- 23 SIZE RELIEF LINE ACCORDING TO MANUFACTURER'S RELIEF VALVE OUTLET SIZE. ROUTE TO FLOOR FULL SIZE OF VALVE OUTLET.
- 24 FORCED DRAFT BURNER.
- 25 3/4" THRED-O-LET. CENTER AT SIDE OF PIPE.
- 26 GAS TRAIN SUPPLIED BY BOILER MANUFACTURER INSTALLED BY CONTRACTOR. SEE GAS TRAIN DETAIL A1/ME501.
- 27 RELIEF VALVE SET AT 15 PSIG ABOVE FILL PRESSURE.
- 28 EXISTING BACKFLOW PREVENTER SHALL REMAIN.
- 29 STRAINER (SCREWED).
- 30 PROVIDE 3" FLANGES ON BOILER SUPPLY AND RETURN CONNECTIONS.
- 31 PROVIDE DRAIN AND BALL VALVE WITH HOSE CONNECTION. DRAIN PIPING AND VALVE SHALL BE SAME SIZE OF BOILER CONNECTION.



CONSULTANTS



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06/12/08

WHW JOB NO.:  
08022

SHEET TITLE



**MECHANICAL FLOW SHEET**

SHEET NO.

**ME701**